

# SAFETY NEWS



# You'll find the Head Protection for YOU

...and for every

Job at



## M.S.A. SHOCKGARD

Maximum head protection in electrical-hazard areas—from high voltage contact and falling objects. Minimum protection tested at 10,000 volts. All-plastic shell—no metal parts. Special Web Cradle straps; one-unit leather lining.

## MODEL T ALUMINUM HAT

Light, cool and comfortable. Ideal for those desiring a metal hat. Tough aluminum alloy resists blows from falling or flying objects. Rigid brim protects face, neck, shoulders. Snap-in-Adjustable lining only.

## M.S.A. COMFO CAP

Combining lightweight comfort with head protection, the M.S.A. Comfo Cap is well-balanced, durable. Low crown design makes it ideal for low coal mining. Standard type lining only.



## M.S.A. TYPE K SKULLGARD

*The most popular and accepted work hat!*

Tough, laminated bakelite composition safeguards workers from every head hazard. Perfect balance, light weight results in greater wearing comfort. Available in any of the lining styles illustrated below.

## M.S.A. GLASS FIBER HAT

High pressure molded, this hat provides perfect head protection. Smooth contour design deflects falling objects and minimizes blows and bumps. Featuring the Snap-in-Adjustable lining, this head protector comes in the following stock colors: Red, White, Yellow, Green, Blue, Gray, Black.

## M.S.A. TYPE B SKULLGARD

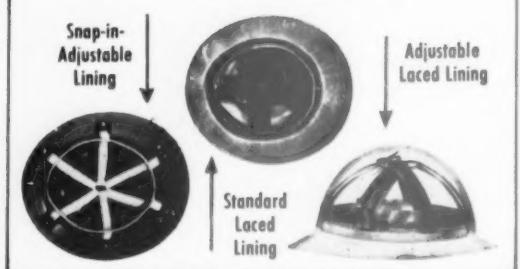
The Type B offers the best head protection available in cap-type style. Rigid peak, with reinforced beaded edge. Accommodates all linings except Snap-in-Adjustable.

## M.S.A. STREAMLINED FIREMAN'S HELMET

Designed for maximum head protection and freedom of movement. Laminated bakelite construction. High dielectric strength. Rubber-cushioned lining provides greater wearing comfort.

M.S.A.'s complete line of hats and caps meets your every job, style, color, and lining needs. They are smart looking, light weight, comfortable, well-ventilated. They are designed for all service conditions, individual preferences. They have rugged strength and durability. Workers are safer, better satisfied when their head protection fits the job. Write for details.

### A CHOICE OF LININGS, TOO



Call the M.S.A. man on your every safety problem . . .  
his job is to help you.



## MINE SAFETY APPLIANCES COMPANY

Braddock, Thomas and Meade Sts. • Pittsburgh 8, Pa.

*At Your Service: 68 Branch Offices in the United States*

## MINE SAFETY APPLIANCES CO. OF CANADA, LIMITED

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## Plastic Protective Equipment

Because Willson safety equipment is made after careful study of industry's needs, you get all the comfort and safety improvements first in Willson products. The complete Willson line of safety equipment includes more than a hundred face, eye and respiratory products for industry, farm and home—the most complete selection of safety equipment—and you can get them anywhere!



**WILLSON MONOGOGGLES®**

### THE WILLSON MONOGOGGLE®

—plastic eye protection that keeps your eyes safe from the front and sides, as well as providing wide angle vision! Flexible plastic frame gives you lightweight comfort. Fits over spectacles. Lens is replaceable. You'll like the MonoGoggle!



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**SAFETY GOGGLES**



**RESPIRATORS**



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**THE COVER:** The trains get through. Black smoke pours from the smokestack of the Milwaukee Road's rotary snowplow engine as the blades bite into 15 feet of snow piled high on a siding near Hyak, Wash., at the east end of the Snoqualmie Tunnel. The main track has already been cleared. Photo by the Seattle Times, courtesy The Milwaukee Road Magazine.

### IN THIS ISSUE

Management Supplies the Spark— <i>Marlin G. Geiger</i> . . . . .	18
Gas Masks for Peace Time— <i>G. M. Glidden</i> . . . . .	20
Home Is a Dangerous Workplace— <i>Thomas J. Berk</i> . . . . .	22
What Makes Them Tired?— <i>John V. Grimaldi</i> . . . . .	24
An Introduction to Workmen's Compensation— <i>Robert D. Gidel</i> . . .	26
The Expert and I (Diary of a Safety Engineer)— <i>Bill Andrews</i> . . . .	28
What Does It Cost? How Much Does It Save?— <i>J. A. De Luca</i> . . .	30
Chains That Won't Let You Down— <i>Jess Hogans</i> . . . . .	32
Making It Easy to Keep Clean . . . . .	36
The Home Folks Helped . . . . .	38
William Jewell College Honors Paul Jones . . . . .	42
Thermostats Keep Watch on Hot Asphalt Tank . . . . .	48

### DEPARTMENTS

Editorial . . . . .	17	For Distinguished Service . . . . .	60
Safety Valve . . . . .	27	Industrial Health . . . . .	66
The Lighter Side . . . . .	29	Personals . . . . .	70
Accident Barometer . . . . .	40	Obituary . . . . .	70
Green Cross News . . . . .	44	Coming Events . . . . .	88
Small Businesses and Associations . . . . .	52	Safety Posters . . . . .	98
Safety Library . . . . .	56	Calendar Contest Winners . . . . .	116
		New Products . . . . .	117

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the first and  
only proven, effective and non-irritating  
antiseptic chemical for soaps

Protect your workers and help reduce absenteeism by specifying for your washroom dispensers, soap containing G-11.

Secondary infection is often associated with occupational dermatitis, resulting from cutting oils, solvents, minor cuts, etc.

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*Hexachlorophene is a development of Sindar Research Laboratories*

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**Used in wide variety of applications throughout industry**

**Improve workers' safety... health... comfort... efficiency**



**VANO DESIGN "A" VENTILATOR** is used here during repairs to a chemical still. This type ventilator is used to ventilate tanks, tank cars, drums, vats, underground cable manholes, pipe galleries, airplane wing compartments, fuselages and other confined places. Uses 8" diameter flexible canvas tubing ("Ventube").



**VANO DESIGN "B" VENTILATOR** here discharges welding fumes from double-bottom compartment in naval vessel under construction. Large volume of air handled quickly expels fumes and results in good ventilation. Vano Design "B" can pass through opening only 14" in diameter. Uses 8" diameter flexible canvas tubing ("Ventube").



**VANO DESIGN "C" VENTILATOR** here withdraws fumes from a reactor kettle. This ventilator can be furnished with 8" suction inlet for 8" non-collapsible suction tubing — or multiple inlet nozzles for 5", 4", and 3" suction hose. The discharge may be connected to 8" "Ventube." Capacities furnished on request.



**NO. 2 AEROPLANE HEAT KILLER** here directs cool, fresh air on worker in drop forge plant. Heat killers restore workers' efficiency by providing extra ventilation in the hot months, or on any job where workers are continually or periodically required to work in excessive heat. Available in two types, three sizes in each.



**VENTAIR DESIGN TE-4 VENTILATOR** Gasoline Engine Driven, here delivers air into underground manhole. These ventilators provide fresh air to men in confined places, promoting safety, comfort, and increasing efficiency. Ideal where no electric current is available. Delivers 1700 CFM of fresh air. Uses 8" diameter flexible canvas tubing ("Ventube").



**PORTAIR NO. 4 BLOWER EXHAUSTER** exhausts fumes resulting from soldering, welding, tank coating, is also used in ventilating small tanks. It is designed to permit attachment of 4" flexible metal hose. Capacity: 425 CFM free air.

**ATTACH THIS COUPON TO YOUR COMPANY LETTERHEAD**

**COPPUS ENGINEERING CORPORATION, 121 PARK AVENUE, WORCESTER 2, MASS.** Sales offices in Thomas' Register, Other "Blue Ribbon" Products in Chemical Engineering Catalog, Refinery Catalog, Best's Safety Directory and Mining Catalogs.

**Please send me information on supplying fresh air to men working:**

- in tanks, tank cars, drums, etc.
- in underground cable manholes
- in aeroplane fuselages, wings, etc.
- on coke ovens
- on steam-heated rubber processes

on boiler repair jobs

**COOLING:**

- motors, generators, switchboards
- wires and sheets
- general man cooling

- around cracking stills
- exhausting welding fumes
- stirring up stagnant air
- wherever men are working or material is drying
- drying of walls, sheets, etc., after treated with coating material

Write here any special ventilating problem you may have

{

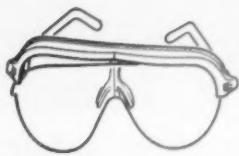
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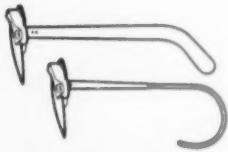
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### 1 $\frac{1}{4}$ oz. BAL-spec Eye Shield



One-piece snap-in lens is extra large, affords wide field of vision, is formed to 6.00D curve. All-acetate frame is non-sparking.



Ful-Vue temples provide unrestricted side vision, choice of flexible riding bow, or spatula which are especially liked by women because they don't muss hairdo.

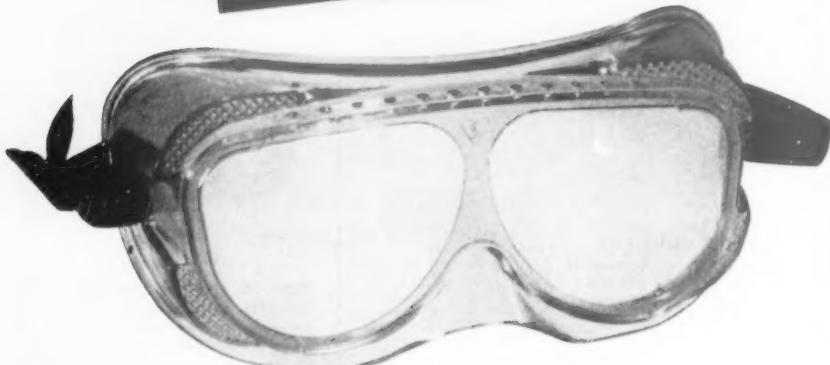


# 1

### BAL-spec All-Acetate Eye Shield

BAL-spec is especially suitable for supervisory personnel and plant visitors, and others who pass in and out of hazardous areas. Each BAL-spec Eye Shield is individually sealed in cellophane, may be repacked and sealed for re-use in polyethylene bags available from Bausch & Lomb. BAL-spec meets all U.S. Bureau of Standards tests for impact-resistance, of course.

## THE 2 BEST ANSWERS to low cost eye protection

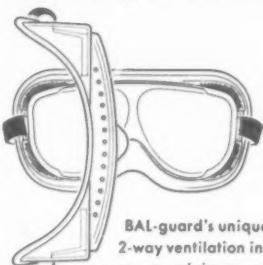


# 2

### BAL-guard All-Acetate Eye Shield

Here is side and frontal protection without restriction to field of vision. BAL-guard is molded to fit any average face comfortably. It may be worn over regular glasses, or corrective safety glasses. BAL-guard meets all U.S. Bureau of Standards requirements for protection against impact, guards against dust or splash. Frame available in 2 shapes—wide and narrow—in clear, transparent green or opaque brown. Snap-in lens in clear or transparent green.

### 1 $\frac{3}{4}$ oz. BAL-guard Coverall



BAL-guard's unique 2-way ventilation insures a minimum of fogging. Roll-molded rims for extra comfort, extra structural support.



Crystal-clear snap-in lens is replaced in seconds. Lens area fits orbital cavity, is ideally shaped for full visual comfort.



# BAUSCH & LOMB

## Safety Eyewear

**WRITE TODAY** for complete specifications and prices on these two great acetate eye shields. Bausch & Lomb Optical Co., 90313 Smith St., Rochester 2, New York.

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hours of work.*

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'Thantis' Lozenges contain no antibiotic; they produce no unpleasant by-reactions in the mouth.

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Supplied in vials of 12 lozenges.

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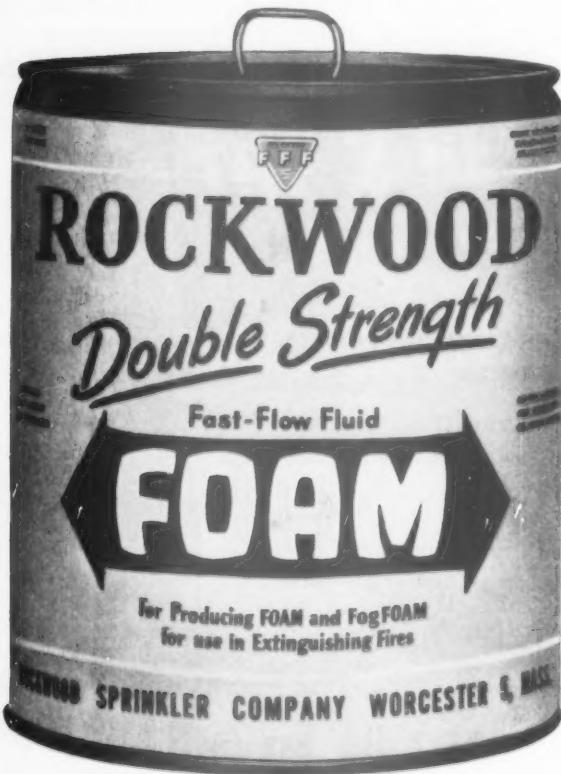
# Quenches Quicker!

... with Less Water

that's the Short-Short Story of Rockwood Fire Fighting Aids

That's why fire-fighters like to work with Rockwood's equipment. Take for instance our new contribution to modern fire fighting, the Rockwood Double Strength FOAM Liquid which has many important advantages. Three of these are:

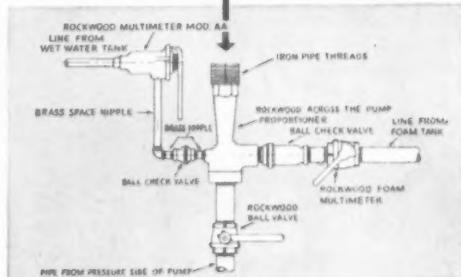
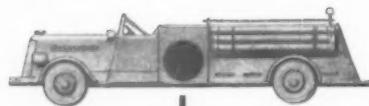
- 1. more fluid
- 2. faster spreading
- 3. flows freely at sub-zero temperatures



Rockwood's new Double Strength FOAM Liquid will put out fires in flammable liquids faster and at lower cost. Three parts of FOAM liquid mixed with 97 parts of water form an excellent foam blanket that will quickly re-seal if broken. Double Strength FOAM Liquid is more fluid, faster spreading and flows freely at sub-zero temperatures (-15° F.) It is quicker to put into action, covers burning surfaces faster, seals off combustible vapors completely and flows freely around obstructions. This foam blanket has proved its ability to extinguish large spill fires in gasoline with maximum speed and safety to firemen.

**ROCKWOOD SPRINKLER COMPANY**

Engineers Water . . . to Cut Fire Losses



**Accurate Mixing Assured:** Automatically feeding Double Strength Foam or Wet Liquid into hose lines, Rockwood's Model Dual "B" Around-the-Pump Proportioner is designed for use where pressure is maintained by a pump from either draft supply or booster tank. Multi-meter settings admit proper amounts of wetting agent for varying nozzle discharges and solution strengths.

## Special Fire Truck Proportioning Systems for FOAM Liquid and Wetting Agents

Trucks for crash-rescue fire fighting, at airports or for handling spill fires in an oil refinery require special proportioning systems for large volume FOAM discharge through several FOAM turret and hand line nozzles.

Custom engineered proportioning systems to meet these and other unusual requirements are a Rockwood specialty. If you have such hazards let us engineer a proportioning system to fill your needs.

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ILLUSTRATED CATALOG**



**ROCKWOOD SPRINKLER COMPANY  
72 HARLOW STREET, WORCESTER 5, MASS.**

Please send me Rockwood's illustrated catalog on the complete line of cost cutting, efficiency-boosting products for modern fire fighting.

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*National Safety News, January, 1953*

# NEW

## SAF-I-LENS

A Complete Safety Lens Program  
Your Choice of 3 Lens Materials



**OPTILITE A.** This lens recommended as your first choice because its extremely hard surface offers greater resistance to abrasion. Lightweight, great strength and fine optical qualities assure employee acceptance. On jobs where pitting and spatter are encountered, will last ten times as long as glass. Exceeds Federal Specifications for impact-resistance. Highly resistant to acids and chemicals. Available in 6.00 curve, clear, in 44 MM or 47 MM drop oval eye sizes or 50 MM round.

**OPTILITE B.** This lens recommended as your second choice because of extremely low cost. Lightweight and excellent optical qualities assure employee acceptance. Meets Federal Specifications for impact-resistance and optical qualities. Available in 6.00 curve, clear, in 44 MM or 47 MM drop oval eye sizes or 50 MM round.



**HARDENED SAFETY GLASS.** For those who desire hardened safety glass we offer these lenses which are manufactured in strict accordance with Federal Specifications. Available in flat, 1.25 and 6.00 curve clear, 44 MM and 47 MM in drop oval or 50 MM round. Shades No. 1-2 or 3 available in 6.00 curve only.

Write for literature and prices.

ALL LENSES FIT  
ANY STANDARD FRAME

UNITED STATES SAFETY SERVICE CO.  
TAMPA CITY & MISSOURI BRANCHES IN PRINCIPAL INDUSTRIAL CITIES  
In Canada PARADEL, LTD. TORONTO - MONTREAL

# FOR WHATEVER YOU DO . . .

## *there's a Dorsey*

# SAFE-T-SHOE



NO. 5800

A handsome shoe of finest quality for style, comfort and safety.



The PARATROOPER

No. 8450

Genuine oil tanned for comfort, looks and long wear.

### The Dorsey Safe-T-Shoe SAFELY KEEPS YOU ON YOUR FEET

A variety of styles are available, from expertly finished calfskin oxfords, to heavy duty horsehide work shoes - designed with full leather vamp and steel arch support to keep you comfortable for long hours of standing. . . . The properly selected sole for your type of floor hazard can be obtained from our stock. DACRON stitching, the new wonder thread that is resistant to acids and alkalis and with magical wearing qualities, make Dorsey the best buy in safety shoes.



For rough industrial uses where a dress shoe does not belong. Dorsey goes all-out for comfort and long-wearing durability which comes with the use of the finest leather and workmanship.



The CHAMPION

No. 4540

Genuine triple tanned horsehide, soft, pliable and rugged.

### Dorsey SAFE-T-SHOE

THE MOST COMPLETE LINE OF  
INDUSTRIAL FOOTWEAR! WRITE  
TODAY FOR ILLUSTRATED FOLDER.



DORSEY SAFE-T-SHOE COMPANY • CHATTANOOGA, TENNESSEE

# ANSUL DRY CHEMICAL FIRE EXTINGUISHING EQUIPMENT

Besides getting the best in dry chemical fire protection equipment, Ansul users also receive a complete fire protection service without cost or obligation. Reprints of advertisements numbers 1 to 5 of this series give details. Write today for a complete set of these advertisements.



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**WHEELED PORTABLES**  
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**STATIONARY**  
**EXTINGUISHERS**  
**AND PIPED SYSTEMS**  
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**TRAILERS AND**  
**SELF-PROPELLED**  
**UNITS**



**MODEL  
30-B**

OFFICES AND DISTRIBUTORS IN PRINCIPAL CITIES IN THE U. S. A., CANADA AND OTHER COUNTRIES  
ALSO MANUFACTURERS OF INDUSTRIAL CHEMICALS, REFRIGERANTS AND REFRIGERATION PRODUCTS

Send for your copy of file No. 647. You will receive a variety of helpful printed matter. Included is our latest catalog which illustrates and describes Ansul Fire Extinguishing Equipment of all sizes.



# **ANSUL** *Chemical Company*

EQUIPMENT DIVISION • MARINETTE, WISCONSIN

FIRE EQUIPMENT DIVISION • MARINETTE, WISCONSIN  
OFFICES AND DISTRIBUTORS IN PRINCIPAL CITIES IN THE U. S. A., CANADA AND OTHER COUNTRIES  
ALSO MANUFACTURERS OF INDUSTRIAL CHEMICALS, REFRIGERANTS AND REFRIGERATION PRODUCTS



# DIRT...



# OIL...



# INK...



# ABRASIVES...



**Lint-free!** KIMWIPEs keep safety goggles and shields sparkling clean without linting or "dusting."



**Grit-free!** KIMWIPEs are 100% free of foreign matter; great for inspection wiping of smooth surfaces.



**Absorbent!** KIMWIPEs soak up ink, oil, chemicals in a flash! Indispensable around duplicating machines.

disappear quickly, completely with low-cost, disposable **KIMWIPEs\***!

Now—a clean, soft, *absorbent* tissue made especially for office, laboratory or plant! New KIMWIPEs\* industrial tissues clean faster, easier, better—do every job from wiping ink to precision polishing without scratching, linting or disintegrating.

You'll find dozens of uses for KIMWIPEs—end the dangers of dirty, scratchy cloths—and completely eliminate unnecessary laundering. Each tissue is a "man's handful"; strong yet amazingly absorbent, and completely non-abrasive. So inexpensive, a fresh, clean tissue can be used for each application—then thrown away! KIMWIPEs are recommended especially for cleaning office duplicating machines and operators' hands, wiping safety goggles and face shields after applying liquid cleaner, wiping up machine oil or dangerous chemicals, and inspection

wiping of machined parts and finely finished surfaces. In the handy "serve up" package, KIMWIPEs can be located at several spots in your plant or office—just one tissue comes out at a time.

Order a supply today from your distributor. Two tissue sizes—15" x 18" and 5" x 9". For complete information, write to Dept. AA-13, Kimberly-Clark Corporation, Neenah, Wisconsin.



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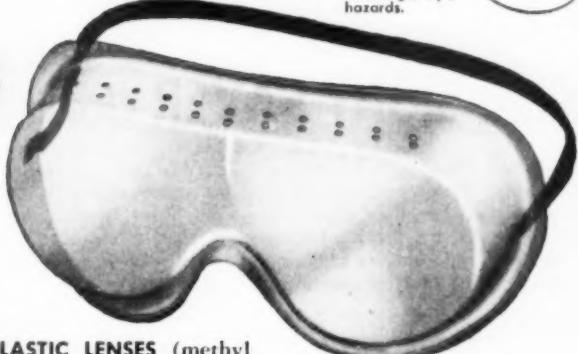
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National Safety News, January, 1953

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JANUARY 1953

## Crossbreeding vs. Inbreeding

A GREAT movement such as ours involves a vast amount of organization and promotion, and the growth and influence of the Council have been due to the initiative and energy of its volunteer officers and committeemen, both national and sectional. These leaders are busy throughout the year, planning programs, developing research projects and extending membership.

I am reminded of this by a recent letter from one of our good members—one who has been active in the safety movement for more than 30 years. He wrote:

"As I look back upon my connection with the National Safety Council, I have sometimes wondered just how much progress could have been made in my own organization without the many services of the Council."

These words are a tribute to the entire membership and volunteer leadership of the Council as well as to the headquarters staff. The services to which he refers have been built up on our shared experiences.

This letter recalled an editorial I read some time ago in a sales publication—"For That Million Dollar Idea, Try Crossbreeding Instead of Inbreeding." Here, it seemed to me, was one of the reasons why the safety movement has been such a live and vital force.

We all know what happens to animals as a result of continued inbreeding. In a similar way, deterioration and sterility overtake any organization that depends on its own limited circle for new ideas.

We see plenty of examples of the value of cross-fertilization in safety work. Although the Council is divided into some thirty sections, according to occupational interests, these sections, fortunately, are not watertight compartments. There is a constant interchange of ideas among groups via the medium of the Council organization. Thus, those interested in safety have opportunities to discuss their specialized problems in their own sections, yet they can learn something from others whenever and wherever sections come together.

Another example is the interest industrial people have in off-the-job safety and their contacts with those in the home safety and public safety fields. There is a counterpart in the Council organization with its industrial department working with the field organization and our traffic and motor transportation divisions. Going a step further, overall Council activities interlock with other safety organizations and committees as well as community service organizations and clubs.

Above all, there is the benefit to be obtained from continuing the close working relationship between safety men and operating men. The more safety men work with operating men in solving industry's problems, the more effective they will be in their own fields.

This principle of crossbreeding is no less important in the development of ideas than it is in plant and animal husbandry. I am convinced that one of the most important things the Council can do is to maintain this continued interchange of ideas among varied groups.

*Ned H Dearborn*



## Management Supplies the Spark

By MARLIN G. GEIGER

**Men at the top see farther than those charged with details. From their position they can give guidance and support**

**M**ANAGEMENT IS A term which at safety meetings usually refers either to the managers who have most directly to do with production and with safety problems as such, or to all those down the line who are in directive positions. This article will deal mainly with the opportunities and obligations of top management—those who at the highest level set the policies of the organization.

There are many reasons why top management should be interested in the safety program. I might say *every* reason.

In the broadest sense, safe operation is good public relations. It affects the relationship of the company not only to its employees but to the community at large. To be known as a *safe* place to work is a long step toward being known as a *good* place to work. To be sure, this helps to cut down labor turnover and win for the company the better, more solid and reliable type of employee.

But the implications are much wider. In these days, more than

ever, it is an obligation of a company to be a good citizen, a good member of the community, interested in the well-being and health not only of its employees but of all the people in the area in which it operates.

Safety and health are virtually one and indivisible. Interest in the employee's safety is necessarily associated with interest in his health, and this will insure that fire hazards are at the minimum and stream and air pollution are rigidly controlled . . . advantages in turn to the whole community.

An employee trained in safety radiates benefits in an ever-widening circle of influence. He will be more conscious than one not so trained in the need for safety on the road and in the home. If accidents do occur, his first aid training will be of conspicuous help.

I have never seen comparative statistics worked out of the safety of the office and factory as against that of the home or highway. I suspect that in many of our well-run plants a man or woman is safer than at home or walking the streets or riding in an automobile.

One of the Davison plants, at Savannah, Georgia, has gone five years without a disabling injury. But in this period there were a

number of cases of lost time from accidents away from the plant, not associated at all with the worker's job, and probably not his fault because he was thoroughly trained in safety.

You might say that a chemical company has more than the ordinary obligations to make of safety a primary objective of top management. It is true that in the public mind chemistry tends to be associated with explosives and poisons, far-fetched as this may be in most instances. But although industries differ in detail, they are broadly the same in obligations and objectives. The big aim is and always should be: *How safe can you make the works?*

The investment in safety at Davison has been heavy but the rewards have been more than in proportion. The direct benefits to management are not confined to improved employee relationships. We have found cash benefits in substantial amount. We have received from insurance companies in the last four years \$82,000 retroactive return premium on a premium that had already reflected our good experience. That took care of a good sized bite of the costs directly ascribable to the safety program!

But that still isn't all. A safe

MARLIN G. GEIGER is Vice-Chairman of the Board, The Davison Chemical Corporation, Baltimore, Md. This article has been condensed from an address before the Safety Engineering Club of Baltimore, October 9, 1952.

plant is one with good housekeeping, which makes for efficiency, for low costs, and for quality products—all benefits well worth striving for. Show me a plant with bad housekeeping and I will show you a plant with a poor safety record.

I dwell on these considerations because they may help you, as safety engineers, in what I suppose to be your constant problem of keeping top management interested in your problems and ready to foot the bills. Such "selling" is not necessary in the Davison organization. With us, preoccupation with safety starts at the very top, with our chairman and president, Chester F. Hockley.

Mr. Hockley's experience and mine go back to the earlier days of the steel industry, when there just wasn't any safety program and conditions were appalling. Mr. Hockley remembers when, as a young engineer, he saw twenty men carried out of coke ovens, killed by avoidable gas leakage. The plant superintendent said, "It's too bad, but there are 200 waiting at the gate for those jobs!" Mr. Hockley thereafter was determined that whenever he attained a sufficiently high level of authority he would insure that no such callousness would exist and that no possible precaution against accident would be omitted.

For this reason every member of our organization knows that top management insists on safety in the offices and the plants. The man directly entrusted with coordination of the program, A. B. Pettit, has the complete and active backing of management. Other managers in the operating and technical departments, some of whom might be inclined to be indifferent or casual in safety matters, know that such an attitude will not be tolerated.

Inevitably in any safety program the analysis of causes of accidents ranks high among essential activities. In this top management at Davison directly participates. Any accident of importance is immediately reported

## When Railroading Was Rugged



IN CONTRAST TO snow removal with a rotary plow, as shown in the cover illustration, is this scene on the Iowa and Minnesota Division of the Milwaukee Road during the winter of 1868-69. An old style plow with a 4-8-0 locomotive behind it could get through if the drifts weren't too deep but it sometimes required a lot of hand shoveling to free the snow plow.

to us and we follow through in the handling and study of the consequences of the accident. These accidents are reported by telephone to me or to Mr. Hockley regardless of the hour of the day they occur.

This in no sense reflects on the abilities of the men who are charged with administration of the safety program. It is our way of backing them up, a constant assurance of our interest. It also reflects our belief that production and even safety men tend to be so close to their problems that they may overlook factors that are apparent to men more remote from the details of operation.

It is the old story of not seeing the forest for the trees. The supervisors and plant managers are sometimes too close. The research and development men tend to consider only the hazards that are technical in nature. Furthermore, it is a function of top manage-

ment to look ahead; to anticipate changed conditions and needs and to make plans accordingly. This is difficult for men charged with the details.

Top management participation provides a check on the qualities of the safety administrator himself, although that is not necessary in our case, now that we know we have the right man. Too many managements regard appointment of the safety engineer as the end of their obligation. They may find after a costly interval that they have chosen the wrong man. He may fail because of lack of backing; more likely from lack of character and ability, and willingness to put forth the proper effort.

High in causes of failure are simple lack of interest in the job; a tendency to seek excuses instead of causes and remedies, and the downright dishonesty of falsification.

—To page 74

# Gas Masks for Peace Time

By G. M. GLIDDEN

**Lethal gases in World War I stimulated development of the gas mask. Industrial needs brought further progress**

**G**AS MASKS! We're not at war! We don't need any." To the majority of people, the mention of gas masks can pretty much be summed up in those phrases—i.e., all except to the safety directors, the stockkeepers, superintendents of maintenance, and the few of that general group of personnel who have to do with the health and safety of certain individuals working about the plant.

That general impression that "We don't use them" is usually qualified by the person as he gives careful consideration to the hazards around his operations, commencing usually with the need for

protection during fires. Then his thoughts travel through the refrigeration department where protection against ammonia or other refrigerants has been needed for some time.

And then, if those operations exist, his mind goes cleaning degreaser tanks to cleaning storage tanks for liquid solvents and vehicles, through the compounding rooms where dusts and gases are evolved, through welding operations where toxic fumes are evolved, to rescue jobs where unknown conditions may exist, then to explosions and breaks of piping where high concentrations of gases may exist.



Canister gas mask for a wide range of gases and long life. (Willson Products)

One of the first masks (so-called) to be developed was for protection against ammonia and was also used by fire departments over fifty years ago. It consisted of a heavy leather hood which rested on the shoulders of the wearer, having two "portholes" for vision purposes, each with a manually operated windshield wiper on it, a little French horn or whistle for signaling and a tank which could be pumped up with a bicycle pump for supplying air to the wearer. The actual mechanism for protection was to depend upon the outgoing air from the compressed air tank to always keep up an outward flow through the high quality wool pad which was the seal on the shoulders of the wearer.



Compressed air supplied mask using air cylinder. (Scott Aviation Co.)

G. M. GLIDDEN is General Manager, Acme Protection Equipment Company. Acknowledgment is made to members of the Industrial Safety Equipment Association for helpful cooperation in supplying data and illustrations.



Supplied air mask, low-pressure type. (E. D. Bullard Co.)

This was a very cumbersome device, so the pendulum swung to the other extreme, demanding something very light. This was answered by the canvas facepiece with round, small goggles attached and a nose clip and mouth bit to assure positive respiration through the air inlets and exhalation valve.

We have again swung to the other extreme of the pendulum and there are now available (with

very good reason), complete suits with self-contained mask outfits underneath the all enveloping suit.

Because industry has made the most rapid strides in the last fifty years (and we could even say, in the last ten years), some rather interesting uses for mask equipment and types of mask equipment have arisen.

Ten or fifteen years ago on the West Coast there was a school of thought on the fighting of fires which was quite the reverse of the usual "break the windows, open the doors, and ventilate the fire so that you can find out where it is to put it out" idea in fire fighting.

This idea was to keep everything tight and make one small opening, even if it called for the use of jackhammers, to break a small aperture in a wall or the floor of a wharf or down through a roof, small enough so that it would not ventilate the area—and into this area, a man or men would go with small hose lines in an endeavor to get to the seat of the fire and put it out without letting it start raging because of the influx of fresh air.



Self-contained breathing apparatus, close system type. (Mine Safety Appliances Co.)



Self-contained breathing apparatus, self-generating type. (Mine Safety Appliances Co.)

To accomplish this, the men had to be provided with mask equipment and, since a water hose line was carried in, the addition of an air hose line didn't seem to complicate matters much, with the result that compressors were standard equipment to go to the fire and were immediately put into operation to supply air through an air hose line to the men who entered the area.

The fear that the air hose line might be cut or kinked at some time, caused the addition of a canister attached permanently to the mask equipment, which be-

—To page 78



Welding gas mask. (Acme Protection Equipment Co.)



# Home Is a Dangerous Workplace

WHEN management is faced with accidents peculiar to its operation, it investigates and analyzes their causes. Fortified with this knowledge, it is in a position to plan an attack—taking care of the most serious accidents first and establishing a continuous program to encompass the prevention of all accidents.

It is for these reasons—planning and action—that industry has been so successful in reducing industrial accidents. It is only through these factors that we can hope to reduce our greatest concern today—home accidents.

Because of this I should like to discuss the various methods utilized by management to reduce work injuries. In so doing we can become more familiar with them and can then approach home accident problems with worth-while

THOMAS J. BERK is Assistant Safety Director, Metropolitan Life Insurance Company, New York. This article has been condensed from a paper presented at the Maine State Safety Conference, York Harbor, September 11, 1952.

BY THOMAS J. BERK

Statistics tell the accident story. They also point to remedies, which aren't easy to apply

measures that have proved successful. The effective industrial safety program is custom-made to the particular needs of a plant. True, information and data utilized may be of an industry-wide or national nature. But the safety engineer knows that the basic requirement is knowledge of what causes accidents in his own plant.

Associated with every industrial accident is an unsafe condition, an unsafe act, or both. This can be accepted as true in the occurrence of any accident in the home or its surroundings. If we want to be successful in our efforts to reduce home accidents, we must delve deeper and determine the underlying facts. Accordingly, the first step in the prevention of any home accident is to identify and isolate the factors that affect accidents.

The relationship of home accidents and their causes to industrial accidents may be interesting. A recent study made by the School of Public Health at the University of Michigan shows that about one-third of all reported home accidents causing superficial injuries occur in the kitchen. However, the lawn or yard produces more of the serious injuries. For men it seems that the yard or lawn and then the kitchen are the most hazardous. Women have more accidents in the kitchen—and sometimes we men wonder if they don't have more accidents with their cooking than are reported.

Of course, in interpreting these findings we must give consideration to the type of activities, tools, and implements normally utilized, and other pertinent factors.

Among those other factors is the

element of exposure. For example, the Michigan study shows that although the average woman (there are none) spent about 139 hours per week in the home as compared to 121 hours spent by men, the rate of reported superficial injuries to women was 9.0 per 100 hours of exposure whereas for men it was only 5.7.

They also found that the rate of superficial injuries per 100 hours exposure among females showed little change in the age groups 0-4 through the group 15-19. Then something seemed to happen, for example, in age group 20-24 the rate was about double that for the previous 5-year age group—perhaps the newly-weds were having a hard time getting their workshops in order. This rate remained comparatively high through age group 30-34.

As might be expected, most injuries were cuts or lacerations. The second most frequent superficial injury for men was bruises and for women hot surface burns. The part of the body injured most often was the fingers. In the study made by the University of Michigan, injuries incurring expenses, loss of time from usual activity, or those requiring treatment by someone outside the dwelling unit were classified as major injuries. All others were put into the category of superficial injuries.

Among the concerns of management when considering accident prevention are loss of time by the employees and the cost. Likewise home accidents result in time loss and expense. As reported in the National Health Survey of 1935-36, the average duration of disability from home accidents disabling for a week or more was 49 days. The National Safety Council tells us that the cost of home accidents last year was \$600,000,000. This cost figure is minimum and includes only lost wages, medical expenses, and the overhead cost of insurance. It does not include property damage, of which fire losses alone total about \$200,000,000.

#### Like the Service Industries

Workers in the service industries perform a variety of jobs not unlike those found in the home. They cook, wash windows, press clothes, tend furnaces, operate washing machines, to mention only a few of the occupations. These services also include repairs to electrical appliances and furniture.

What do we find? In New York State accidents in service industries are, on the average, more costly than for all industries (\$546 per case vs. \$483).

What else do we find in the service industries? As in the home accident picture, injuries to hands, fingers, and arms combined were more numerous than to other parts of the body. Nearly one half of the permanent partial disabilities represented injuries to the hands and fingers. Cooks, bakers, kitchen and laundry workers suffered such injuries to a greater degree than most other service workers.

Handling of materials and things contacted by workers were the leading cause of injuries followed closely by accidents occurring in connection with working surfaces. Those surfaces, consisting of floors, sidewalks, pavements, and yards have sometimes been designated as "walking surfaces" to distinguish them from objects or working surfaces that are either elevated, such as platforms, stairways, and roofs, or that are portable such as ladders, boxes and chairs. In cases closed, it was shown that working surface accidents on floors were caused mostly by wet, oily, greasy, soapy, messy conditions or loose objects lying on the floor.

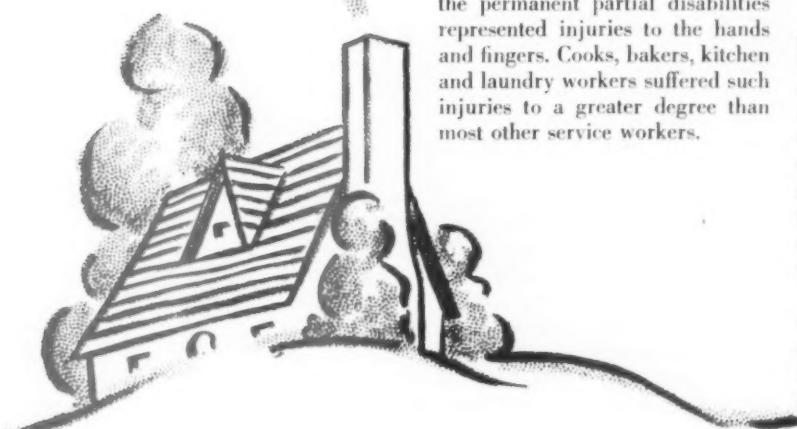
That's what we find in an industry whose functions are somewhat similar to a home. And what do we find in the home? The National Safety Council tells us that last year falls in the home killed about 14,700 persons. Other causes of accidental deaths in the home are burns, mechanical suffocation, poisons, etc.

The Michigan study developed a pattern of ages when accidents occur. The same is true in the service industries. However, the peak age changed from 20 to 24 for home accidents to 40 to 59 in service industries where about one half of all accidents are occurring. And as in the home, the hands, fingers and arms are the parts of the body most frequently injured. About 35 per cent of the injuries are in this group.

Let's look at industry again for guidance. A recent report of the Industrial Commission of Illinois shows that where about one third of the employed work force is composed of women, only 10 per cent of the injuries reported were among women. But again we find that one out of every four injuries among women were due to falls on working surfaces.

You may be interested to know that for the purpose of analyzing causes of accidents, working surfaces are classified in four major groups: walking surfaces (ground

—To page 105



# What Makes Them Tired?

By JOHN V. GRIMALDI

**Tired men are raw material for accidents. But attempts to prevent fatigue run up against personal and environmental problems**

THE subject of fatigue is still a great mystery, although certain relationships between fatigue and industrial factors have been stated. Based on acknowledged relationships, some recommendations for correction of what are recognized as the effects of fatigue have been advanced.

The fatigue problem has always been with us, and although research has cast some light on its character, the complete answers have been and probably always will be elusive. The fact that we most often deal with intangibles in each case leads to repetition and rephrasing of our present knowledge.

There are no equations that provide the only correct answers. Therefore, the fundamentals that are known must be frequently referred to, reapplied and reinterpreted in order to stimulate new advances. At present, we must accept a great deal of what we use pretty much as we accept the Bible—we believe but very often cannot prove.

One of the major difficulties in solving accident prevention problems has been the lack of information on why people behave as they do. It is recognized that there are many environmental conditions which affect in one way or another the performance of workers.

JOHN V. GRIMALDI is Assistant Manager, Accident Prevention Department, Association of Casualty and Surety Companies, New York. This article has been condensed from a paper presented at the Twenty-second Annual Safety Convention, Greater New York Safety Council.

For example, so-called industrial fatigue is the result of worker's exposure to his job environment. This article will take you across the stream of information on industrial fatigue by selection of various stepping stones of pertinent knowledge. When we have completed the crossing, we will see that there is still much uncertainty concerning the subject, even though specific conclusions that are effective have been drawn.

The principal difficulty has been the determination of fatigue. Conditions for its determination are two: (1) That we know what we mean by fatigue. (2) That we have some method by which we can know that different degrees of fatigue are present at certain different times.

## An Ambiguous Term

The necessity of the first of these conditions is self-evident. Yet the word "fatigue" is not easily defined. Some authorities have declared it to be impossible of definition. Others have made the suggestion that the term "fatigue" be absolutely banished from precise scientific discussion, because of the ambiguity of its nature and the confusion resulting from its use.

Fatigue has most often been associated with activity. One popular definition of fatigue considers it a reduced capacity for work which is caused by work; work in this case being used in the physical sense as the effect of a force being moved through a distance. It is implied, therefore, that fatigue is brought about by

muscular effort. But modern industry, for the most part, does not require employees to work with much physical exertion. Therefore, industrial fatigue as we know it must be attributed to other sources.

## Work vs. Play

A review of the literature points out that psychological and environmental factors are considered far more important causes of fatigue in industry. A better definition for the term "fatigue," therefore, is required. It would be more acceptable to state that fatigue diminishes the individual's capacity for performing the activity which caused it. This may be justified by recalling instances where we have felt tired and ready to stop doing one thing and then become completely refreshed as soon as another more favorable activity is suggested. For example, we can spend hours bowling but 20 minutes cleaning the workshop leaves us exhausted.

Because the nature of fatigue itself is still quite a mystery, much of what is known about fatigue is concerned with its characteristics. We know of many causes of fatigue, such as muscular tensions, sitting or standing without moving, resentment, personal griefs, nervous demands of the work cycle, duration of work periods, monotony, worry, disgust, fear, rest, lack of sleep, noise, poor lighting, temperature, atmospheric conditions, time of day, distractions, health and nutrition, etc., all exercise a very decided influence on the state of one's energies.

and the ability to direct them to the safe accomplishment of a specific task.

For example, researchers have shown that<sup>1</sup> atmospheric conditions appear to have an appreciable influence on accident rate. Their results suggest clearly that there is an optimum temperature of about 67.5°F. at which accident incidence is at a minimum and that it increases as the temperature rises above or falls below that point. For practicable purposes, however, we must recognize that the best temperature for accident prevention is not necessarily the most suitable for plant operation.

#### Correctable Factors

The subject of fatigue is indicated, therefore, as an important one to the safety engineer and yet a very difficult one to resolve and attack. In particular he should remember the specific environmental conditions that produce "fatigue" for they can be controlled for the most part and they are responsible also for harmful effects on personnel. Poor lighting, noise and atmospheric conditions generally can be corrected within practical limits.

Some materials, such as carbon tetrachloride, methyl chloride, trichlorethylene and carbon monoxide can cause mental confusion, excitement and languor, headache or visual disturbances as well as permanent physiological damage. These can be recognized and guarded against.

In every study of industrial fatigue, its presence has never been wholly determined physiologically. The majority of the demonstrations of the relationships between safety and fatigue have been shown through studies which measured accident frequency experienced under situations that might be considered fatiguing. This is an indirect test for fatigue based on the belief that as a person becomes more and more fatigued, he will become less and less able to protect himself. A recognized feature of fatigue is

## Who's Stupid?

Boy, are these new workers stupid!

Take Sylvester, for instance. If the name doesn't floor you, what he did will.

We needed a new man on that press and Sylvester's job application stated he had experience. When he was interviewed, he was *asked* if he knew the safety rules which applied to punch presses, and he said yes.

Why, when I showed him the press and told him to get to work, I *asked* him if he had read the safety rule book that he got when he was hired, and he said yes. I *asked* him if he knew how to keep his hands out from under the ram and he said yes.

When I saw him operating the press with one side of the two-hand operating device tied down, I told him he would be sorry if he got his free hand caught under the ram as a result. Well that's just what he did. Got two fingers nipped off slicker'n a whistle.

It's a funny thing. Sylvester isn't the only one we have had this kind of trouble with. Seems like we have had several similar cases the last year or so.

Jim, the new freight elevator operator, overloaded it the first day on the job and the elevator fell to the bottom of the pit. We had asked him if he knew how to operate an elevator and he said yes.

Sam got his eye put out when a chip flew into it while chipping a weld. When I saw him doing the same thing the day before, I told him he would be sorry if something hit his eye without his goggles on. Well, it did.

After all we do, to impress on these guys the need for safety in our work, they have to go and pull stunts like these.

Well, whatta ya gonna do? Guess they just don't grow 'em the way they used to.

Boy, are these new workers stupid!

ROBERT D. GIDEL, Senior Engineer  
Industrial Department, National Safety Council

that there is a reduction in muscle coordination.

One of the earlier studies reported<sup>2</sup> was made of plant accident totals at the conclusion of each hour worked. The results showed that the accident rate tends to increase with each successive hour of work reaching a maximum during the last two hours of the morning and afternoon work periods. The maximum may be as much as two to four times greater than after the first hour.

Since this shows a correlation between accident rate and total continuous hours of work, it appears that fatigue is responsible, at least partially, for accident

causation. Another study<sup>3</sup> demonstrated the relationship between production, fatigue and accidents. Based on the assumption that in the absence of fatigue, accidents will vary directly with the speed of production due to increased exposure to risk, it was shown that accidents increased disproportionately as output fell. The breaking up of the regular accident-production variation was attributed to the presence of fatigue. The statement of another researcher<sup>4</sup> that on the whole slower workers fatigue more quickly is interesting at this point.

In 1941, the National Institute of Health published a survey<sup>5</sup>

—To page 111

# Introduction to Workmen's Compensation

By ROBERT D. GIDEL

**This is the first of a series of articles on principles and applications of compensation laws. Future articles will deal with various types of problems**

When workmen's compensation laws were first enacted by state legislatures, they were regarded by many judges and attorneys as of minor importance. However, during the past 41 years their scope has so broadened as to affect the lives of the vast majority of industrial workers. They now form a large and very important branch of jurisprudence.

We are now celebrating 40 years in the safety movement. Forty-one years ago, ten states passed Workmen's Compensation laws which withstood the claim of unconstitutionality previously leveled on such laws. In effect, we might say that these two great efforts have grown up together.

Tremendous progress has been made in both efforts, so by sitting back and analyzing our accomplishments and our faults with regard to both movements, since they are both so intimately related, we can best determine how to proceed in the future. Federal safety legislation has become a threatened reality and not far behind it is the call for Federal workmen's compensation legislation.

We have a direct cause and effect relationship between accident prevention activities and workmen's compensation claims. One is the result of some weakness in the administration of the other.

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Although it is difficult for one firm by itself to achieve lower compensation insurance rates by its own safety activities, when an industry bands together through its trade organizations, or in other ways, and makes provisions for accident prevention industry-wide, rate decreases can be achieved.

Companies covered by private insurance carriers can get valuable aid and advice on compensation insurance problems and on safety problems from their insurance carriers and their safety engineering departments. State agencies also provide similar services.

## Three Elements

There are three elements involved in any Workmen's Compensation claim. There must first be an employment; there must be an injury; and there must be a causal relationship between the injury and the employment. In other words, the relationship in most states is such that the injury must have "arisen out of and in the course of the employment."

The big controversy appears in the interpretation of what constitutes "arising out of and in the course of employment." Where is the line separating liability and non-liability to be drawn?

In order that a minimum of problems arise, the responsibilities of both the employer and the employee under the law should be clear. If the employer sees to it that the rights of the worker are

sufficiently explained to him when an injury occurs, much needless litigation may be prevented, to the benefit of both the employer and the employee. The legal system itself will also be benefited since it is pitifully overburdened in most states. Smoother employer-employee relations result when the rights and obligations of each are clear.

The obvious ways of limiting injury claims is by requiring better supervision, better training, better guarding of hazards, and more attention to all aspects of safety control. Once an injury occurs, an early settlement of all claims is desirable for both employer and employee.

When a bad injury record is pointed out to many small companies the statement is made "that's what I have insurance for." Many people are quick to be alarmed at what appears at first blush to be excessive settlements by insurance companies. Court costs, legal costs and delays in litigation are not generally understood by the layman.

## Judicial Interpretation

Statutes may say one thing, but judicial interpretation and expansion to meet changing conditions and political ideology sometimes make their practical application very dissimilar to the original statute. In the courts, there is a constant attempt to balance the

—To page 104

# The SAFETY VALVE

*Nothing human is alien to me.*

—TERENCE

## "Brown's Job"

WHEN A MAN who has held a job with unusual pay and prestige passes on, people always wonder who'll take his place. But can any man ever really fill another's place?

The new man may be as good as his predecessor—even better. But the job won't be the same when he takes over.

Back in 1920, F. R. Feland, an executive of the BBD & O advertising agency, wrote a gem of copy for a house organ. It was entitled "Brown's Job." After Feland's recent death *Printer's Ink* reprinted it as a memorial.

Brown had a big desk and a salary that in pre-inflation and pre-high-income-tax days was substantial. Apparently he was a sort of Pooh Bah in the company.

He didn't try to sell anything but he visited distributors and gave talks before salesmen. He answered important complaints, although that wasn't his job. He wasn't in the credit department, either, but the credit manager often consulted him.

Whenever a serious problem came up the big boss would ask, "What does Brown think?"

Brown knew the business and the men in it. He had a lot of sense and he seemed to use it without consciously summoning his judgment to his assistance. He seemed to "think good sense."

And when he was gone men began applying for his job—bright, ambitious young fellows and dignified older men. To quote:

"... Men who never suffered Brown's sorrows nor felt his joys, men who never loved the things Brown loved nor feared the things he feared—are asking for his job.

"Don't they know that Brown's chair and his desk with the map under the glass top are not his job? Don't they know that they might as well apply to the Methodist Church for John Wesley's job?"

"Brown's former employers know it. Brown's job is where Brown is."

All of us have known men who had Brown's abilities in varying degrees. We missed them when they were lost to us through death, retirement, or just a change of jobs.

Their successors don't fill the jobs. They build new ones on foundations laid by those who have gone before. And the organization continues to feel the influence of those who have worked for it.

## Expanding Influence

POPULAR SLOGANS inspire parodies—sometimes derisive. That doesn't disturb us; we can stand kidding. But when one of our slogans is adapted to any worthy cause, we're really happy.

Many years ago "Stay Alive!" was widely used. A Pittsburgh church picked it up for bulletin board use and greeted passersby with: "Stay Alive—Physically and Spiritually!"

And more recently the Kiwanis Club of Riverdale-Dolton, a Chicago suburban community, borrowed the Council's current slogan for this commendable message on a prominent illuminated board: "Take the Family to Church Sunday—the Soul You Save May Be Your Own."

## In This Issue . . .

INTEREST IN HEALTH and safety, more than any other single factor, has been responsible for good employee relationships at Davison Chemical Corp., says Marlin G. Geiger, vice-chairman of the corporation's board. An additional dividend from these efforts has been a substantial reduction in insurance costs. But, after reading this article, you'll feel that neither of these important benefits was the real inspiration for the program. (Page 18.)

\* \* \*

The chemical industry is constantly developing materials that will resist the action of known solvents. Then it sets to work to produce solvents that will dissolve insoluble substances. This, of course, keeps the manufacturers of protective equipment busy trying to keep up with newly created hazards. (Page 20.)

\* \* \*

For fatigue, as for the common cold, there are plenty of palliatives but no sure cure. The remedies suggested here should help. (Page 21.)

\* \* \*

Nobody will argue that prevention isn't better than compensation but safety departments are constantly facing problems involving compensation laws. Robert D. Gidel of the Council's Industrial Department, who is superimposing a legal education on top of his engineering training and experience, has prepared a series of articles on basic principles and typical applications. The first of these appears on page 26.

\* \* \*

Anybody who upsets comfortably established routines is sure to arouse resentment—even when his recommendations are sound. Efficiency experts belong in this class. This month our fictional safety engineer tangles with one and they come out of it with increased respect for each other. (Page 28.)

*Carman Fish*



## THE EXPERT AND I

*(Fiction)*

By Bill Andrews

Monday, January 5, 1953

DID YOU EVER find yourself acting out, in real life, a very old and very stale joke? That's what I've been doing this morning.

The joke is one of the most grey-headed in the repertoire of after-dinner speakers at safety meetings. It has a hundred variants, but they all end with the bumbling Mr. Big of an imaginary company telling his safety director, "We haven't had an accident for a year on the punch presses" (or whatever machine is picked) "so why should we keep spending money on guards we don't need?"

I have even laughed at that joke—but I'm not laughing at it today!

Larson's latest addition to his presidential staff is something that calls himself a management engineer. A few years ago, we might have called him a top-level efficiency man. In any age, he might be called a trouble shooter.

I early formed the idea that he was a guy with some ability. He put, within two weeks of the time he came here, a well-groomed finger on a couple of management weak spots that I had known about for quite a while. Some feelings were hurt, but no heads were lopped off in the process of reform—and the reform should be a genuine help to the organization.

I knew that just before the end of the year, he was taking an in-

terest in my work. His assistant had come in and collected quite a lot of data. Lewis (he's the management engineer) spent a couple of days with me and my boys. He's a very good listener, and we told him our story pretty straight, as we would to any intelligent, interested guy who didn't seem to have a lot of preconceptions when he came to us.

This morning, first thing, inter-office mail brought in a memo written by Lewis to Larson. In the upper right hand corner was scrawled "Comments? Lars."

The opening paragraph was nice reading. It went,

"The Safety Department is a well-integrated staff unit of the president's office. It has a record of substantial achievement over the last five years. Its relations with line supervision seem as good as could be expected in view of its status as a staff agency working from the top. Its personnel seem to be alert, progressive, well-informed and conscientious."

Then followed a series of discussions of aspects of our work—guarding, housekeeping, material handling, etc.—all quite favorable.

And I'll give Lewis credit, he did put his finger on two legitimate weak spots. One of them, fire prevention, I already knew was a weak spot. I have never been able to explain to myself why I tend to give more emphasis to guarding and material handling than I do to fire prevention, but I have to admit it's true, and, though we've been lucky at Jackson-Barnes, we've had too many close calls for me to feel snug about it.

The other weak spot I didn't know about before. In fact, I was just about to open my mouth and bellow to all and sundry about this jackass from the front office who would try to tell me what was wrong in the warehouse when it occurred to me that maybe there was something to what he said. It was worth, at least, a check of the records which he quoted to prove his point. And that check proved there was at least a strong

possibility that he was right—that we had consistently stressed lifting and hand-and-power-truck operations, ignoring the fact that in the last two and a half years the principle source of injuries has been splinters and cuts from the crates and injured feet from dropped packages.

My respect for Lewis went up several notches. To catch that, he had to do something I should do routinely—compare accident records with the minutes of safety meetings and the subject matter of posters. My detailed record keeping on subjects of meetings and the numbers of the NSC posters used has boomeranged on me, because Lewis was smart enough to put a clerk to checking back issues of NATIONAL SAFETY NEWS to see what the posters covered. But boomeranged is the wrong word, of course. I keep those records so that I could make just such comparisons, and it is nobody's fault but my own that I had to wait for somebody else to use my own records to show me up.

Having gotten humbled to that extent, I didn't immediately boil when the next paragraph opened, "It is a well-known fact that many safety engineers of ability and intelligence allow themselves to become overly interested in certain limited aspects of their work. I believe the safety engineer of this company has fallen into this error. This is not surprising, since at the time of his entrance into this company and the organization of safety work on its present basis, eye injuries represented a proportion of the total compensation claims which justified a very large amount of effort in this field.

"The work which was done was productive of substantial savings, so it must be assumed that the work was well done. There is an analogy here between the eye program and the warehouse situation. The safety department, alert and acute enough to determine appropriate targets for initial concentration of effort, has not proved so alert or acute in adapting the

safety program to changing situations — particularly situations which have changed as a result of its achievements.

"In the warehouse, as we have seen, material handling and truck operations have remained points of concentration long after other aspects of the problem have become relatively more serious. And the eye program, so necessary as a sort of shock treatment in 1948, is continued at substantially the level of intensity of this first attack long after the need has been eliminated.

"To establish this point, I need only accept the safety department's own estimate that approximately 15 per cent of the time of its personnel is devoted to eye protection work, and that eye and face protection represents about 23 per cent of the expenditure on personal protective equipment in the plant, while eye injuries today account for less than 4 per cent of the total compensation and medical costs resulting from accidents.

"This is certainly over-emphasis, and the safety department should be directed to concentrate on more productive aspects of its work, even at the expense of drawing its top officer away from the pursuit of what is, essentially, a hobby rather than an objectively chosen point of concentration."

That last, of course, eliminated any tendency to humility, and sent me into a rage. How much of a rage, I didn't realize until, finally, I saw my secretary heading out of the door looking wild and Harry Dexter standing by my desk, saying,

"It must be bad, boss, to make you curse for five minutes straight. Anything I can do?"

I growled, "Come on, maybe coffee will help. Maybe I need to talk this out and get some thinking done out loud. I'm not doing any good talking to myself."

Over coffee I said, "Do I look like the kind of a guy who rides a hobby to death?"

Harry said, "Not exactly."

I asked, "Am I a mono-maniac who doesn't care how many people



break their necks, just so long as I can play with my pet project?"

Harry said, "I couldn't even call the name of your pet project. What is it?" — To page 91

# What Does It Cost? How Much Does It Save?

A summary of accident costs, safety program costs, and relative constants, based on construction experience

By J. A. DE LUCA

THE Construction Division of the du Pont Company has pursued the integration of safety into all its field construction and administrative work to the highest known degree for approximately 20 years. The work has been heavy construction of new plants for du Pont's own commercial interests, as well as vast projects for the government.

All in all, the facts which follow have been ascertained during construction experience on more than 32 commercial projects and over 30 small, medium, and large projects for the government. The connotation, "commercial projects" with regard to size means, variously, six months' to 18 months' to 36 months' construction duration, with forces varying from 100 to 700 to 2,000 men.

Government projects have varied in size from 300 men to 2,000 men to 45,000 men. Irrespective of the size or scope of the project, financially or in manpower, and irrespective of the end products on either commercial or government work, all safety engineering was done in the same way, using the same techniques with a relatively constant favorable result.

The major difference in the application of du Pont Construction Division's safety techniques, project for project, has been a matter of proportion only. Safety is operated like any good business. At all times, the department knows: cost, performance, schedules, planning and results.

J. A. DE LUCA is Construction Division Safety Superintendent, E. I. du Pont de Nemours & Company, Wilmington, Del.

One general objective from the economic standpoint has been to create understanding and appreciation of these methods and techniques so insurance carriers and insurance brokers would be influenced to insure the du Pont

activities on a progressively improved "Performance Rating." The average workman's compensation insurance rate for 12 to 15 different construction crafts in heavy construction throughout some 20 states has, between 1940 and 1950, inclusive, approximated \$5.25 per \$100 of payroll based on the "Manual of Rates."

The du Pont Construction Division, based on performance rating discussion *prior to the conclusion of insurance contracts*, has consistently procured insurance coverage, where self-insurance was not

Brief safety meetings on the job help to keep down accident rates.



## Cost of an Adequate Safety Program

### Example No. 1

- In 1947 one project executed 16,199,413 hours of work
- At an average rate of \$1.75 per hour
- The cost of a fully adequate safety program was \$164,490.

Calculation— $(16,199,413) \times (\$1.75) = \$28,348,972$

$$\begin{array}{r} 164,490 = .0058 = \frac{1}{2} \text{ of } 1\% \text{ payroll dollars} \\ \hline 28,348,972 \end{array}$$

### Example No. 2

- In 1951 one project executed 15,515,688 hours of work
- At an average rate of \$2.10 per hour
- The cost of a fully adequate safety program was \$179,563.

Calculation— $(15,515,688) \times (\$2.10) = \$32,582,944$

$$\begin{array}{r} 179,563 = .0055 = \frac{1}{2} \text{ of } 1\% \text{ payroll dollars} \\ \hline 32,582,944 \end{array}$$

In the examples, Factor C is made up of the following charges:

5% Safety Personnel Salaries

15% Safety Equipment (Less Employee Purchases of Shoes, Hats, and Gloves)

30% Reminderism and Education Meetings—Time

It is to be noted also that the  $\frac{1}{2}$  of 1% came about by *supplying required safety—not by limiting the cost first.*

permitted, at \$2.00 per \$100 of payroll. This represents 2 per cent insurance cost. In almost every case no insurance was procured from outside carriers or brokerage groups without the provision for further rate reduction below 2 per cent when further performance was had on the same project. In addition, all insurance contracts provide retrospective considerations after service charges. Cited are two examples of the effect on insurance of proper safety management:

A commercial project in Texas, not self-insured because of Texas laws, had a well-known carrier who, on du Pont's insistence for a "performance rating," condescended to a rate of \$4.80 per \$100. This rate represented the maximum understanding of that insurance carrier's interpretation of the possible effect of safety engineering. When, after a year or more, the carrier had been in a position to experience what du Pont construction calls "accident prevention technique," he volunteered a 43 cent rate in place of the \$4.80 rate.

Another example, not on a commercial project but on the largest government project ever built and having to do with dates as late as January 1952, has, in the same way as the example above, experienced a rate reduction from an original performance rating of \$2.00 to 76 cents per \$100 of payroll with an abundance of reserves held. To our knowledge, after the reserves are held sufficiently to cover limitations of the law, the rate will actually be 22 cents per \$100 of payroll.

Workman's compensation insurance rates vary by crafts from less than \$1 to over \$40 per \$100 per payroll, representing maximum and minimum under all conditions. It is practical to think about rates in terms of what the average contractor spends for insurance, with or without safety. Averaging the rates and the contractors would probably limit the scope to \$2.50 to \$6.50 in general

construction work currently.

The foregoing implies that if accident prevention is followed as it can be, and has been in a few cases, many other contractors have the possibility of reducing that segment of their overhead cost headed, "insurance," anywhere below 6 per cent to less than 1 per cent or 2 per cent. This particular

consideration involves a majority of the 15,000 contractors in the United States at this time.

With the foregoing as historical background, as well as actual experience, and during which time, in the over-all, several millions of dollars' worth of insurance was saved, the accompanying data is provided.

#### Insurance Costs on a \$7,000,000 Job

The following basic calculations demonstrate how insurance costs can be reduced on construction jobs by good safety engineering and safety performance:

- A. Payroll Labor = \$3,500,000  
Normal Insurance Cost = \$4.50 per \$100 Payroll (conservative)  
Calculation— $(35,000) \times (\$4.50) = \$157,000$  Total Insurance Cost.
- B. If safety is rigidly controlled, it is possible to earn a performance rating of \$2.00\* per \$100.00 payroll.  
Calculation— $(35,000) \times (\$2.00) = \$70,000$   
This would provide a saving of \$87,500 over normal cost.
- C. Performance ratings have been known to result in a rate of \$.40\*\* per \$100.00 payroll.  
Calculation— $(35,000) \times (\$.40) = \$14,000$   
This would provide a saving of \$143,500 over normal cost.

\* Based on Frequency Rate of Less Than 4.

\*\* Based on Frequency Rate of Less Than 1.

#### Accident Costs per \$1,000,000 Construction Work

That accidents on construction projects are expensive may be seen in the following table:

Total Cost of Project—\$1,000,000
Of Which Labor Amounts To—\$500,000
Which @ \$2.50 Hourly Rate Equals—200,000 man hours
*Accidents Normal to Construction = 45/1,000,000 exp. hrs.
Accidents Normal to 200,000 Exposure Hours = 9
Direct Cost of Each Major Injury = \$500 Medical
+ 250 Compensation**
\$750

Direct Cost of 9 Major Injuries =  $9 \times \$750 = \$6,750$

Indirect Cost\*\*\* = 4 Direct Costs =  $4 \times \$6,750 = \$27,000$

Direct and Indirect = \$33,750.00\*\*\*\*

Cost of Accidents Per \$1,000,000 Construction Work = \$33,750

\* Source: U. S. Bureau of Labor Statistics,

\*\* Experience of an organization having much safety. (Industry average could more approximately be used.)

Industry Average = 128 days

$\frac{128}{7} = 18 + \text{weeks} @ \$30 \text{ weekly} = \$540$

\*\*\* Source: N.S.C. and experience of the author.

\*\*\*\* Excludes cost of injuries involving lesser severity than "lost time cases."

#### Some Safety Engineering Constants

1. Cost of an "Adequate" Safety program.....  $\frac{1}{2}$  of 1% of payroll  
Time, labor, equipment  
(what they will buy)
2. Direct and Indirect Losses in accident cases..... \$1 Direct to \$4 Indirect
3. Savings from a proper program..... \$4 saved if \$1 spent
4. Personnel Requirements for directing safety..... 1 for every 500 employees
5. Breakdown of the unit dollar for safety cost..... 5% salary, 15% equipment, 80% time
6. Minor injury performance..... 2% per week (7) days

# Chains That Won't Let You Down

By JESS HOGANS

**The injury potential of suspended loads demand systematic attention to selection care and use of chains and slings**

**F**REQUENCY of chain failures may be low. In fact, many plants, many departments go years without chain failure accidents. Because of the relatively low frequency, precautions in maintenance, inspection and use of chains and other hoisting equipment may be overlooked.

There is nothing minor, however, about the probable severity of injuries due to chain failure. While these may be few in number, they are usually spectacular and serious when they do occur. Fatal injuries, therefore, may well be the rule rather than the exception when a chain or any piece of

JESS HOGANS is Safety Director, Fairbanks, Morse & Co., Beloit, Wis. This article has been adapted from a paper presented before the Automotive and Machine Shop Section, 40th National Safety Council.

hoisting equipment fails and a load drops. The serious injury potential, therefore, of suspended loads is great enough to merit the serious consideration of all persons concerned with accident prevention. That, of course, includes plant management, department supervision, safety directors and those employees whose work in any degree brings them into contact with this hazard.

We too have this major problem in our Beloit Works, where we have 93 electrically operated overhead cranes.

These cranes are operated constantly within the various departments of the shop and foundries and carry loads in varying sizes, weights, and shapes. Each of these loads being carried is

suspended by either a rope sling, steel cable sling, steel alloy chain sling or some lifting device, something mechanical. We can have failure and believe me, we have had failure! We haven't killed anyone yet by dropping loads but we have had some close calls. We have had some pretty heavy material fall in locations where people had been very recently.

Incidentally, some of our castings alone weigh over 30 tons. Some assemblies weigh as much as 100 tons. Naturally, our crane operators are instructed not to carry loads over workmen, but we cannot leave the responsibility there. Management, too, has a responsibility and an even greater one, which is to provide and to maintain safe lifting equipment.

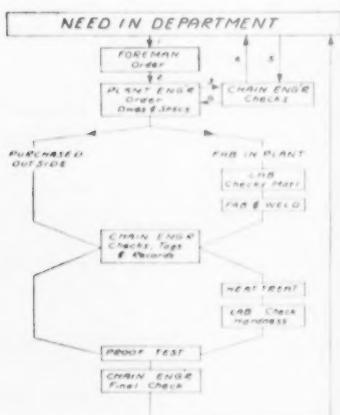


Figure 1. Steps in Fairbanks Morse standard practices covering procurement, inspection and maintenance of chain lifting devices and similar equipment.



Figure 2. When not in use, chains, cables and ropes are stored in these racks.

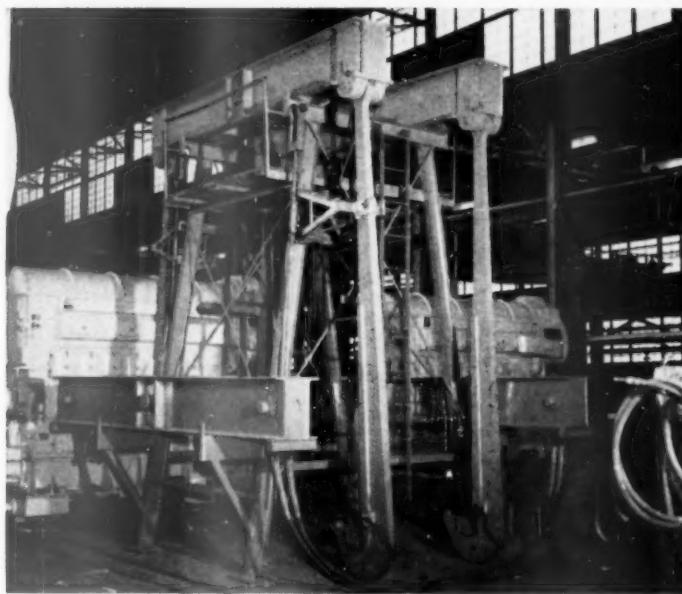


Figure 3. Rack for special devices used to lift a locomotive.

We are approaching our problem by following a procedure covering the procurement, inspection, and maintenance of chain lifting devices. This procedure is written up as a standard practice. It covers the steps to follow when a *need* develops for a department to get a new chain, to get a worn one repaired, or to be inspected regularly either before use or periodically thereafter.

Having a project such as chain maintenance written up as a standard practice or production standard has been a factor in the progress we have made to date. Spelling out various responsibilities, explaining uses and methods to follow clears up misunderstandings and helps give direction to the program. Our over-all plant safety program itself is written up as a production standard and is



Figure 4. Special handling devices in place ready to lift locomotive.

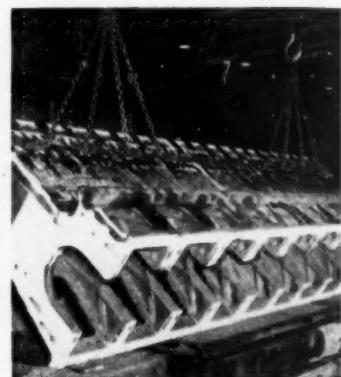


Figure 5. Two special chain assemblies used to turn Diesel engine blocks.



Figure 6. Chain with badly worn link. This occurs when inspection is lax.

concrete evidence to all supervision and others that safety is a part of production.

The various steps in our chain program are shown in the accompanying illustrations. These begin where a need is indicated in some department and end when an approved chain sling or other lifting device is delivered to the department that made the request.

Figure 1, *Flow chart of chain program*, illustrates the various steps in our standard practices covering the procurement, inspection and maintenance of chain lifting devices and similar equipment.

When a need for additional equipment in any department is indicated, the ordering procedure calls for the foreman of the department to make out a request on a maintenance service form. The request form covers a full description of the equipment needed, including a statement of weights to be lifted.

—Next page



Figure 7. Comparison of elongated link with a normal one.

The request is then sent to the plant engineering department for the preparation of drawings and specifications. Prior to their preparation, the chain engineer, who in our organization reports to the plant engineer, investigates conditions and discusses the requirements *at the job* and with the supervisor who made the request.

The plant engineering department then prepares the necessary drawings, showing complete dimensions, material and heat treatment for all parts. The completed drawings are again checked and approved by the chain engineer and the department which placed the order.

The chain engineer next determines whether the equipment needed will be purchased outside or fabricated in the plant. Nature of the problem, special equipment,



Figure 8. A break that developed during a proof test in which a 100 per cent overload was applied.

urgency of need, are some of the factors considered in this determination of whether to purchase or fabricate locally.

Some of the requests are for chain assembly units to be purchased complete from chain manufacturers. In this case, we follow the steps shown on the left side of the chart.

When the equipment ordered is received from the chain manufacturer, the chain engineer checks the chain to see that it conforms to the specifications on the drawing. Following the proof test on our testing machine, the chain engineer places an identification metal tag on the chain and completes an individual chain record gap.

After a final check, following the proof test, the chain or equipment is delivered to the department. The supervisor signs the chain record card and the equipment he requested is ready for use.

The right side of the chart shows the steps we follow when the equipment requested is to be fabricated in the plant. We purchase and maintain a stock of nickel alloy steel chains in bulk. We also maintain an inventory of steel alloy hooks. Assemblies made at the plant are built from this stock of purchased parts.

When the chain engineer makes the decision to fabricate the chain

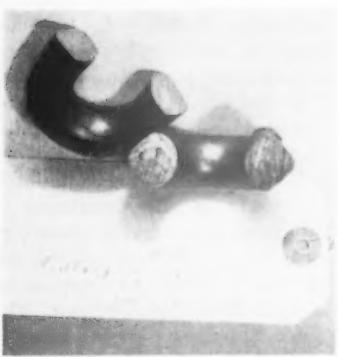


Figure 10. Sectional view of one of the links damaged by dragging over concrete floor.



Figure 9. Links worn flat by prolonged dragging of a chain over a concrete floor.

at the plant, samples of all materials to be used are checked by the laboratory to see that they conform to the chemical requirements specified.

After check and approval by the laboratory, the forge shop proceeds to assemble the chain components. They do not weld the connecting or jointer links; however, such parts of the chain assembly are welded by the chain service department under the personal supervision of the chain engineer.

The chain assembly is then checked with the drawing for specifications and sent to the heat treat department for heat treating. Following heat treatment, the laboratory checks the hardness. Incidentally, we never return to production any equipment repaired by welding until it has been heat treated and tested for hardness. This is in addition to the proof test.



Figure 11. Atomic hydrogen welding machine which produces clean, sound welds in all types of chains.

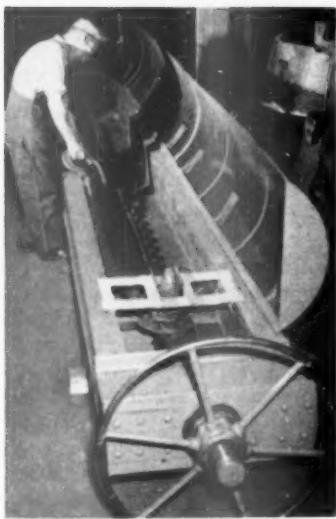


Figure 12. Chain testing equipment in which chains up to one inch are proof tested after chain has been welded, heat-treated and checked for hardness.

The next step in the procedure is to send the chain to the chain service department for proof test on a special testing machine that we have built for our own use.

In proof testing, we follow the recommendations of the chain manufacturer as to proof loads. After the test, the chain is given a link-by-link visual inspection to locate those rare cases where a chain may pass a proof test but still have a cracked link, an elongated link or perhaps a hook that has developed defects while under the load test.

We then attach a stainless steel identification tag to the chain. This tag identifies the chain, its department, its safe load rated at a 45° angle and date of inspection at the same time the chain number is stamped on the bull ring so that the chain can still be identified if the tag is lost.

After the chain record card has been completed, and prior to delivery to the department, a final check is made to see that the chain is tagged, bull ring stamped with chain number and the records completed. The chain is then delivered to the department.

These are the steps we use in our procedure for procuring, main-

taining, and inspecting on; chains and similar equipment when purchased or when fabricated at the plant.

We have in service at the present time about 1500 pieces of chain or other hoisting equipment in which a hook is attached. Our program calls for periodic inspection of this equipment. It requires about 3 months for 3 men to complete a cycle of inspecting all of this equipment. The procedure for this periodic inspection covers the steps shown on the right side of the chart with the exception that no work order is required to authorize the inspections. This routine of periodic inspections is the major part of the chain service department's work.

Figure 2 shows one of our storage racks where chains, cables, and ropes are stored when not being used. This not only improves housekeeping but makes available the proper equipment at the time it is needed. Notice that on this rack are several types of hoisting equipment, chains, a braided wire rope sling, and special cables.

Figure 3 shows a rack for the

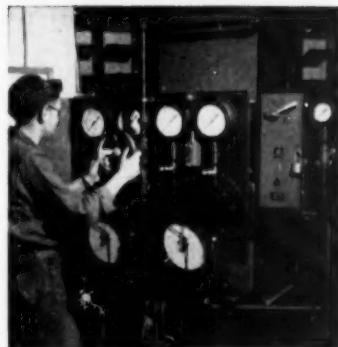


Figure 13. Chain testing control panel. By use of the control wheel, the operator slowly applies proof load to chain to the limit and then releases it.

special lifting devices used to lift a locomotive. You can see that without a special rack for this equipment, the storage itself would create a problem, if not a hazard. In fact, we did have a disabling injury during the very period that this rack was being built when an employee stumbled over one of these large hooks and landed on the disabled list.

Figure 4 shows the special handling devices in place and ready to lift a locomotive.

—To page 113

Account No.	Due Date	Symbol	Tool No.
201-412-7733	At Once		15071 674-C
chain sling for Diesel	Sub Base	Product	OP Diesel Engine
Owner Dept. 201	Quantity 1	Date Ordered 3-10-50	New Tool <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Permanent
Chain Elements	Chain 4	Blocks 4	Replace <input checked="" type="checkbox"/> Inspection <input checked="" type="checkbox"/> Perishable
Lab. Analysis	Type 8620 Steel.		Foundry
Heat Treat	Std. 6-H		1/2" chain, 4-Leg, w/ sling hooks
Hardness	24L 285B	241 285B	B-B Length 12'-0"
Rated Load	11.7 tons at 45°	241 285B	To handle sub base, Assembly.
Actual Test Load	22,500# 1/2" Leg.		CHAIN ROUND CARD Fairbanks, Morse & Co. Beloit Works
Test OK'd by: KB Meldrum 3-19-50	Received By:	K.A. 6-12-51	
KB M 3-30-50	K.A. 3/17/50	K.A. Johnson 7/2/51	
KB Meldrum 1-3-51	W. Johnson 6-15-51	K.A. Johnson 7/2/50	
KB M 7-7-52	K.A. Johnson 1/3/51		

Figure 14. A chain record card. Each chain and other lifting device in which a hook is attached has such a card.

Figure 15. Reverse side of chain record card. This record makes it possible to maintain a running record of chain repair, heat treatment and inspection.



Nine men can wash up at a time at the circular washfountains at Bridgeport Brass Company. One plant uses 40 cartons of paper towels and 185 pounds of soap a week.

nity of our workers can be maintained. That means not only the spirit of fair play must be observed but also that plants shall be well lighted and clean, and sanitary conditions shall be maintained—for these also contribute to maintaining self respect and good labor-management relations."

The Bridgeport company is now remodeling office facilities at the Housatonic plant and has plans for the East Main Street plant which aim toward replacing old buildings with modern and more efficient plants.

Bridgeport Brass spends \$200,000 a year for all around sanitation programs at its two Bridgeport plants. Included in this figure are towels, soaps, detergents, brooms, and other cleaning supplies plus the wages of the cleaning personnel. A large figure, but company executives feel it's worth it.

Under the direction of Perry L. Clark, superintendent of maintenance, at the Housatonic plant which does most of the heavy work, there are 48 sanitation specialists working on three shifts in the mills and two shifts in the office buildings. Twelve workers are employed by the East Main Street plant. At present there are 2,100 workers at Housatonic and 300 at East Main.

At Housatonic there are 30 washrooms available and 24 at the East Main. These include locker rooms and shower rooms with foot baths specially offered for workers in the casting shop.

In the washrooms, the new type Bradley circular sink, which accommodates nine men at a time, is used for group washings. Paper towels are used exclusively in the plant, while cloth towels are used in most of the office washrooms.

The locker rooms are washed

## Making It Easy To Keep Clean

**Sanitation is a \$200,000 item in the budget at Bridgeport Brass. And results justify the cost**

**A**n around-the-clock cleaning program designed to keep workers as individuals producing in a clean and sanitary environment has paid off for the Bridgeport Brass Company, Bridgeport, Connecticut.

Making brass and copper products such as sheet, rods, wire, tubing, and many other manufactured items, including tire valves and plumbing goods, could result in a dirty plant with its by-products of absenteeism, industrial

dermatitis, and low morale, but energetic janitor service and personal cleanliness keep clean workers working in a clean plant.

Herman W. Steinkraus, president of Bridgeport Brass, when he was president of the U. S. Chamber of Commerce, explained the idea behind housekeeping when he stated:

"If we truly respect our workers as individuals, we will see to it that working conditions and working relations are such that the dig-

out daily and showers are gone over three times a day. All plumbing equipment is kept in constant working order and the walls and installations are painted every six months.

Workers at Housatonic use 40 cartons of paper towels a week and consume 185 pounds of soap, while 12 cartons of paper towels are used at the East Main Street plant along with 120 pounds of soap a week. Besides soap and water, germicides are being constantly used and an aerosol deodorant keeps the place smelling clean as well as actually being clean. A program of extermination against mice, rats, and other vermin is in constant operation.

In the mill departments, when oil is dropped on the floor, an absorbent compound is used immediately to eliminate a dangerous slipping condition and sawdust is used to absorb any water on the floors.

To make it easier for workers to keep their work clothes in a clean condition, Bridgeport Brass has an arrangement with a local laundry for service which is patronized by several hundred workers on a weekly basis. The laundry comes into the plant, picks up soiled work clothes, and later de-

livers clean garments directly to employees at the plant for a small fee.

Employees are not required to follow a prescribed regime for washing up, but supervision checks on washing up operations and any worker not following good habits of hygiene is cautioned and guided into better ways.

To help guide the workers in habits of good hygiene, the medical department under the direction of Dr. William T. Clark, company doctor, keeps up a steady program of education in cooperation with the Connecticut State Department of Health which provides circulars and other material to guide the program.

A typical circular is one recently offered which warns the workers against influenza and advises them to wash their hands before eating and before handling food and to observe other good health habits.

"We provide ample and adequate facilities," Dr. Clark explained, "and keep our headaches down to little ones."

According to Dr. Clark, industrial dermatitis is practically nonexistent in Bridgeport Brass plants. In the two Bridgeport

plants during the past few years there have been only two cases of skin disorders, one stemming from an allergy which cleared up as soon as the man was transferred to another department.

Protective gloves and creams are used when the men are working with solutions and processes that are potential dangers, but plain soap-and-water is the backbone of the health program, Dr. Clark said. No harsh cleansers are used for washing up.

To help the soap-and-water service cleaning department, cleaning machines such as power brush machines, rotary sweepers, vacuum sweepers, and steam jennies are used. Everyone at Bridgeport Brass cooperates to keep the plants and offices clean.

The public relations department taking visitors through the plants likes to tell a story of a reporter who came to inspect the plant without making a prior appointment.

After looking over the gleaming plant being orderly run by clean workers, he exclaimed, "Are you sure you didn't know I was coming?"

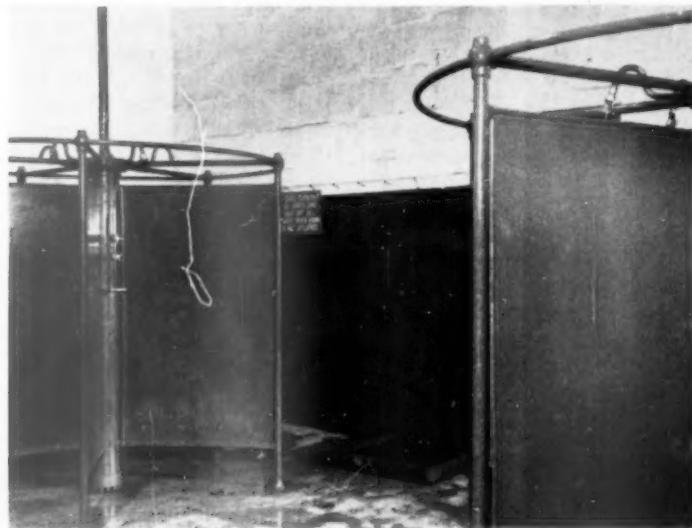
He was assured that the continuing program of good hygiene for both plants and workers was a basic principle at Bridgeport Brass.

### Safety Match Book Wins Award

ROBERT G. STOLZ, newly-installed president of the Advertising Club of St. Louis, and advertising manager of Brown Shoe Company, presented the match industry's "Joshua" award for the match book of the year to D. W. Flock, safety director of the National Lead Company titanium division plant here, at the club's weekly luncheon meeting on December 2.

A series of six match book designs worked out by Mr. Flock, bearing safety messages to plant personnel, was chosen by a panel of 10 judges prominent in advertising as the "most distinguished" use of the medium last year.

Wherever there are hot, dusty or dirty operations, adequate shower facilities are a must. At Bridgeport Brass, shower rooms are washed three times a day.





Boosters of the mill safety program are relatives of employees. Interest is fostered by such activities as a weekly safety poster contest in which the families participate. Here, Mrs. Junior Whiteman, wife of an employee, is receiving a company check.

Because of the plant's location in a deep valley and the use of chlorine gas in operating processes, respiratory protection is important. All equipment is inspected, cleaned and sterilized by a full-time storeroom attendant.



## The Home Folks Help

Families and neighbors of employees take part in the program that is helping to keep mill and community safe

CHLORINE gas escaping from a processing tank drifted down a passageway between two buildings at the Luke, Maryland, plant of West Virginia Pulp and Paper Company. In one building, about 25 office employees of the plant's Power Engineering and Piping Department were at work.

The choking fumes were detected by a plant safety inspector making his rounds. He sounded an alarm for employees in the building and went on to locate the source of the trouble—a pulley belt had slipped from the shaft of an agitator tank in which hypochlorite bleach was being made. Although gas blocked all exits, every employee in the building escaped without harm. The safety and plant protection department had provided a supply of small

respirators to safeguard occupants of the building against chlorine gas.

This recent incident typifies the comprehensive safety program at the Luke plant, oldest mill of the West Virginia Pulp & Paper Company. It is more of a crusade than an ordinary accident prevention program. And it has paid dividends—humanitarian and economic.

It has been responsible for cutting the accident frequency rate at the plant 70 per cent in six years.

It has reduced the cost of accidents from more than \$1 per \$100 of payroll six years ago to 33 cents in 1951, an all-time low. Accident costs are based on medical, legal, hospital and compensation expenses.

During the first six months of

1952, the accident frequency rate was even lower than it was last year. And the cost-of-accident figure dropped to 17 cents per \$100 of payroll in that period.

For its 1951 record, the Luke plant received an "Award of Merit" from the National Safety Council. Each employee was presented with an award key ring.

Supplementing the three basic principles of safety—Education, Engineering and Enforcement—has been a fourth "E"—Enthusiasm. John J. Long, director of safety and plant protection at the Luke plant, credits the fourth "E" for a major share of the program's success. Safety enthusiasm has been cultivated at Luke in many ways. But, more important, it has been instilled in every employee, from the mill manager,



Safety bulletin board greets every employee entering the mill. Sign congratulates all workers for winning the National Safety Council Award of Merit for 1951.

A. M. Kaiser, down. And it has been extended into the 10 nearby communities where the mill's 1600 employees live.

In 1947, the safety record was bad. During the year ending October 31, there were 18.4 disabling injuries per million manhours worked. For prior years the record had not been much better. It averaged around 15 or 16 injuries per million manhours annually. Improvement since 1946 has been steady. During 1951, there were only 5.08 lost time injuries for every million manhours. In the first six months of 1952, the frequency rate was down to 3.6.

Four factors characterize Luke's accident reduction and general safety, fire and plant protection efforts:

1. Decentralization of responsibility for accident and fire prevention to departmental foremen and line supervisors.
2. Emphasis on employee training in the "safe way" to do each job.
3. Interest and cooperation of the union.
4. Stimulation of interest in safety *outside the plant*, as well as inside.

With full backing and cooperation of Mr. Kaiser, the campaign started soon after Mr. Long's ap-

pointment in 1947. A 12-member mill safety committee was organized at top management level, headed by the general manager. Every division superintendent was named a member. Each superintendent then was made responsible for organizing regular safety meetings among the supervisors in his division. The supervisors, in turn,

organized safety committees in their respective departments, the manner in which meetings are held being whatever is most feasible—tool box sessions, general department-wide meetings or shift committees. At these meetings, problems pertinent to individual operations are discussed.

Membership on a departmental safety committee is considered a distinction. In some departments, members are *elected* by their fellow workmen. Safety committeemen encourage safety interest, thought and cooperation in their own departments. They report for immediate correction any unsafe practices.

While such a large number of individual committees may seem unwieldy, the delegation of functional responsibility to at least 100 men has stimulated interest and cooperation in safety.

The plant also has a full-time safety inspector and a full-time fire inspector who make daily reports on their tours of the mill. All members of the guard force likewise fill out daily reports, which include safety and housekeeping observations.

Department supervisors are re-

—To page 68

Award pins for long-time no-injury records are presented by Safety Director John J. Long (right). Recipients and their records are: (left to right) Louis Hicks, 40 years; Robert Moorehead, 30 years, and James Jones, 30 years.



# THE ACCIDENT BAROMETER

Prepared by the Statistical Division, National Safety Council

THE DEATH TOTAL for September was approximately 8,000, a 3 per cent increase over the September, 1951 total of 7,800. Increases were reported in deaths from occupational and public non-motor-vehicle accidents. There was a moderate reduction in deaths from motor-vehicle accidents. Home accident fatalities showed no change from 1951.

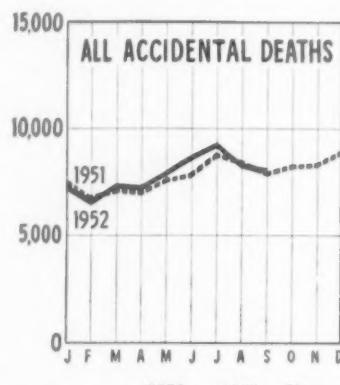
The nine-month death total was about 70,200, or 2 per cent more than in 1951. Most of the increase occurred in deaths from motor-vehicle and public non-motor-vehicle accidents but deaths from home and occupational accidents also were more numerous.

## Motor-Vehicle Deaths

The motor-vehicle death total for September was 3,400, about 5 per cent below the September, 1951 figure of 3,580.

Deaths for the nine months totalled approximately 27,220, an increase of 2 per cent over the 1951 comparable figure of 26,590. The nine-month death rate per 100,000,000 vehicle miles was 7.0, a reduction of 4 per cent from 1951.

Of the 46 states reporting for nine months, 25 had more deaths than in 1951, 1 had the same number, and 20 had fewer deaths. A total of 447 cities with populations



	1952	1951	Change
September	8,000	7,800	+3%
Nine Months	70,200	68,700	+2%

of 10,000 or more reported a reduction of 2 per cent for September and 5 per cent for the nine-month period.

Regional changes from 1951 in the nine-month death totals were:

North Atlantic	-1%
South Atlantic	+4%
North Central	+3%
South Central	+2%
Mountain	+6%
Pacific	+2%

## Occupational Accidents

Deaths from occupational accidents numbered approximately 1,400, or 100 more than in 1951. The total for the nine months was 12,100, an increase of 2 per cent over 11,900 in 1951.

The September frequency rate per million man-hours for plants

in community council contests was 8.55, an increase of 11 per cent over 1951. The September rate for plants in seventeen National Safety Council sectional contests was 6.47, a reduction of 10 per cent from 1951. The nine-month rate in the community council contests was 8.42—up 1 per cent; while in sectional contests it was 6.56, a reduction of 8 per cent.

## Public Deaths

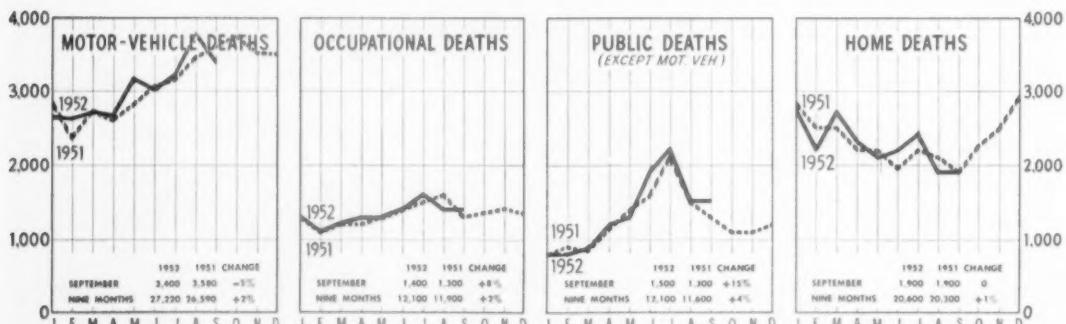
September deaths from public non-motor-vehicle accidents numbered approximately 1,500, or 200 more than occurred in 1951.

The nine-month death total was 12,100, an increase of 4 per cent over 1951. There were moderate increases in deaths from drownings and firearms accidents and a small increase in fatal burns. Decreases were reported in deaths from transportation accidents and falls. Most of the increase occurred among young people 15 to 24 years of age and persons 65 years and over.

## Home Deaths

The total for home deaths in September was about the same as in 1951—1,900.

Deaths during the nine months numbered about 20,600, an increase of 1 per cent over 1951. There was a large increase in unclassified home deaths and a small increase in fatal burns. Small reductions were recorded in deaths from mechanical suffocation, firearms accidents and falls. Most of the increase occurred among persons 45 to 64 years of age.





For greater safety,  
handling ease, and adaptability...

## Give me the Polisher-Scrubber with THESE EXTRAS!



A 600 Series  
Finnell. Four  
sizes: 13, 15,  
18, and 21".

The combination of extras at right not only wins the appreciation of maintenance men, but appeals to thrifty, safety-minded management as well. In operating a 600 Series Finnell, no effort is required to hold the feather-touch safety switch to 'on' position. And the switch works with either hand from either side of handle! When grasp is released, the switch automatically disengages and the machine stops. *Brush-propelled*, it glides over the floor with virtually effortless guidance. True balance is attained through proper distribution of weight per square inch of brush surface in relation to thrust and brush speed. Indicative of the quality construction of a 600 Series Finnell are: G. E. Drip-Proof Capacitor Motor (furnishes abundant power)... worm gear of special phosphorus gear bronze, meshing with worm of hardened, ground, and polished gear steel... New Departure Ball Bearings. Although essentially a polisher-scrubber, with suitable accessories the machine can also be used to apply wax, dry-scrub, steel-wool, sand, and grind.

Another of the *extras* offered by Finnell is nation-wide service! There's a Finnell Floor Specialist and Engineer near you to help solve your particular problems... to train your operators in the proper use of Finnell Equipment... and to make periodic check-ups. It's also good to know that Finnell makes everything for floor care! For demonstration, consultation, or literature, phone or write nearest Finnell Branch or Finnell System, Inc., 2201 East St., Elkhart, Ind. Branch Offices in all principal cities of the United States and Canada.

**FINNELL SYSTEM, INC.**

Originators of Power Scrubbing and Polishing Machines



BRANCHES  
IN ALL  
PRINCIPAL  
CITIES

# William Jewell College Honors Paul Jones



Dr. Walter Pope Binns of William Jewell College (left) and five alumni received the Citation for Achievement Award. At the right is Dr. Norman Vincent Peale, noted clergymen and author. Those receiving the awards, left to right, are: Paul Jones, Dr. Asa Earl Martin, Verlie Short Russell, Harold Glenn Saunders, and Merrill P. MacDougall.

→  
Paul Jones talks informally with students at William Jewell College. Left to right: Margaret Kuhlman, Charles Jacobson, Phyllis Rogers, Paul Jones, Phil King, and Jim Swinehart.

**S**AFETY men find in their jobs a satisfaction far beyond the paycheck. There is a deep sense of the worthwhileness of the work and the privilege of having a part in it.

That was the message which Paul Jones, director of public information for the National Safety Council, brought to the students of his alma mater, William Jewell College, at Liberty, Mo., when he was honored by the college with a Citation for Achievement. Jones was one of five alumni who received the award at a ceremony held November 13.

A successful newspaper man of many years' experience when he



came to the Council in 1937, Jones has achieved outstanding results in bringing the message of safety to a continent-wide audience through the media of the printed page, radio and television.

"When I was in William Jewell way back in the class of '16, one of my professors made a startling statement," Paul said in his ac-

ceptance speech. "He said there was something more important in life than making money.

"This 'something,' he said, was the satisfaction of achievement—the satisfaction of licking a problem you didn't believe could be licked . . . the satisfaction of doing a job better than you had to just to get by . . . the satisfaction of contributing to the welfare and happiness of other people.

"Now of course I was much smarter at that time than I am now, and could make big decisions much faster. So I immediately wrote off the professor's philosophy as so much academic hogwash. A very nice thought, I said to myself, but will it pay the rent? Can you eat it? Can you trade it in on a new car?

"Well, in the years since my graduation I have learned the hard

way that the professor was right. And I am grateful for the opportunity to come here today and publicly admit it.

"Personally, I have not experienced the satisfaction of that kind of achievement to the extent that I would like. But I have seen the great contentment and the serenity

—To page 54



# Cool Feet in hot spots

Neo-Cord is the result of combining high grade cords with duPont Neoprene by the Multi-Angle-Cord process. This produces a sole and heel that successfully resists extreme heat, oil, grease, acids and caustics. This hard wearing, slip-resistant, safety sole, is cooler than ordinary rubber or composition soles and stays flexible for more comfort during its long life. Factory tested by thousands of safety engineers, it has always proved superior under the most exacting conditions.

For greater comfort and safety always specify a Gro-Cord sole and heel.



**Neo-Cork:** An outstanding sole of real cork and neoprene. Long wearing, non-slip, sole that resists gasoline, oil, grease, acids and caustics. Waterproof, cool cushioned comfort.

**Gro-Cork:** A top quality, slip-resistant, sole of rubber and cork. This light weight, long wearing sole is resistant to heat, cold, metal chips. Not resistant to oil, grease or gasoline.



**Neo-Crepe:** A fine neoprene cellular sole for slip-resistant, cushioned comfort. Light weight, long-wearing, extremely flexible. Resistant to oil, gasoline, grease, caustics and metal chips.



**Gro-Cord:** A remarkable cord sole featuring the famous cord-on-end construction. Affords non-slip footing and extra long wear. Should not be worn where grease, oil or gasoline saturates the sole.



**GRO-CORD RUBBER CO.**  
LIMA, OHIO

Canadian Plant  
**GRO-CORD RUBBER CO. of CANADA LTD.**  
Tillsonburg, Ontario

# GREEN CROSS NEWS

## Activities of Local Safety Councils and Chapters



Compiled by TOM A. BURKE

Director of Local Safety Programs, Field Organization, NSC

### Industry and Public Safety

IT IS ENCOURAGING to note the ever-increasing interest in the public safety problem as evidenced by industrial groups throughout the country.

In the December NATIONAL SAFETY NEWS there was the story of the organization of "Safety Unlimited" in three industrial communities of the Camas-Washougal area in the State of Washington. This organization was originally set up by the safety department of the Crown Zellerbach Paper Corp.

Now comes Willits, Calif., basically a sawmill town with a population of 2,500, announcing the formation of a community organization called the "Willits Lumber Safety Council" representing employees of the lumber and logging industries in that area. While the primary interest is industrial safety, the plan also calls for "public education concerning bicycle safety, home and highway accident prevention."

The Council's governing board is made up of two representatives from each of the eight cooperating plants. One from each plant must be from the supervisory level. Union labor is also represented.

The companies participating are: Willits Redwood Products Co.; Warm Springs Redwood Co.; Pacific Coast Co.; Industrial Plywood Co.; Little Lake Lumber Co.; Ridgewood Lumber Co.; Timber Conservation Co.; and National Ventilated Awning Company. A contest is one of the activities and cash prizes are made available through drawings, as a spur to greater safety effort among

600 workers participating. A school essay contest is also planned and an educational program to promote the use of safety shoes and goggles is already underway.

### New York Federation Meets

REPRESENTATIVES from 11 local safety councils and NSC Chapters in New York State attended the meeting of the New York State Federation of Community Safety Organizations held at Corning, N. Y., in early November. The officials of the Corning Glass Company were host to the group which met in the auditorium of the Corning Glass Center.

The following safety councils were represented: Hornell Safety Council; Tompkins County (Ithaca, N. Y.) Safety Council; Schuyler County (Watkins Glen) Safety Council; Broome County Safety Council; Syracuse Safety Division of the Chamber of Commerce; Corning Area Safety Council; Greater Endicott Safety Council; Chemung County (Elmira) Safety Council; Staten Island Safety Council; Hudson Valley Safety Council and the Rochester Safety Council.

An eight-point legislative program was approved, to be circulated among the safety councils of the State in the hope that each Council will discuss the various points with the state legislators of the particular area. Among the points approved were periodic inspection of motor vehicles; increased driver education in the high schools; upgrading of requirements for licensing of motor vehicle operators; improvement of a state driver's clinic now used to

re-examine automobile accident repeaters; backing of Act V of the Uniform Vehicle Code which is pending before the Legislature; more severe punishment for unlicensed drivers and increased enforcement of traffic regulations in rural areas.

The sessions featured an interesting discussion, "How to apply successful safety methods used by industry to the community safety problem," in which representatives of the Corning Glass Company and I.B.M. participated. A tour of the Corning Glass Center followed the meeting.

### Manager Chosen for W. Va. Chapter

CHARLES HOPKINS, a native West Virginian, has been appointed as the new managing director of the West Virginia Safety Council, with headquarters in Charleston. Mr. Hopkins, who served as director of publications for the Kanawha County Schools until his present appointment, assumes the responsibilities of his new position immediately.

Attention was called to the entire reorganization of the Safety Council, effective last month, with the establishment of new areas of safety activity throughout the state, headed by area chairman. Purpose of the reorganization is to make more effective the important work of the council in the field of safety practices and safety education. The new managing director of the council was educated in the public schools of Montgomery; received an A.B. from West Virginia Institute of Technology; and took

—To page 101

For Style and Comfort Conscious  
Men In Industry

**Iron Age**  
presents  
**THE COMMANDER**  
**SAFETY OXFORD**

with  
**"LEATHERPLUS"  
OUTSOLES**



No. 622

A 8-13 D 6-13  
B 7-13 E 6-13  
C 6-13 EEE 6-13

*The Commander* is a new plain toe oxford whose stylish lines are the personification of comfort. The soft, pliable, smooth brown leather uppers are richly finished in this spring's newest color. A sweatproof leather insole and an Armstrong cork filler cushion

the step. The Winguard steel toe box gives complete assurance of protection. For extra value these superior safety shoes are full leather lined, stitched throughout with Dacron and have genuine "Leatherplus" soles. In stock for immediate delivery.

*Write for descriptive color booklet*

**"LEATHERPLUS" SOLES**

**THE LONGEST WEARING ALL-LEATHER  
OUTSOLES EVER TANNED**

"Leatherplus" is the trade name of Van Tassell Leather Company for a patented chrome-vegetable tannage that makes soles of choice steerhide wear up to twice as long. In addition "Leatherplus" soles are extremely flexible. Iron Age has the exclusive rights to these premium soles in the safety shoe field. On No. 622 (above) and many other Iron Age styles they will reward the wearer with greater economy and matchless foot ease.



**Iron Age DIVISION—H. CHILDS & CO., INC., Pittsburgh 12, Pa.**

# NOW! Thom McAn has safety shoes for women!

**THOM MCAN GIVES YOU  
STANDOUT STYLES**

**PLUS BUILT-IN PROTECTION**

Let's face it — most women prefer fashion to safety. And Thom McAn provides *both* in our new **SAFETY SHOES for WOMEN**. Thom McAn protects them in spite of themselves. Send for our Safety Shoe Mailer that gives illustrations and descriptions of both men's and women's footwear for every industrial need.



**Send for full information on these 2 plans today**

1. Store service through your local Thom McAn store.
2. Plant service, where there is no local store, or where you wish to use your own department.

Note, especially, the section under Plan 1, entitled "Four Ways to Get Workers to Buy Safety Shoes."

**Write to:**

Thom McAn Safety Shoe Division  
25 W. 43rd St., New York 36, N. Y.

# Thom McAn

A Division of Melville Shoe Corporation

**SAFETY SHOE DIVISION**  
25 WEST 43rd STREET, NEW YORK 36



# CUT LACES from fatigue with cushioned inner-sole safety shoes!

Trust Thom McAn to bring you the newest and best in safety shoes! Our latest model #S4373 looks dressy enough to wear to a dance. Yet, inside, there's a built-in foam rubber innersole that cushions against jolts and strain and fatigue — provides all-day comfort — boosts morale and production with it.

In addition, you get a leather-lined steel toe box that saves socks from contact with the metal. And the lightweight, Neo-cork sole and heel resist oil, wear longer.

For protection that helps spur production — put Thom McAn's cushioned-sole safety shoes on every man in your plant!



Style S4373



Style  
S4206

## THOM MCAN SAFETY SHOES ARE SOLD 2 WAYS

1 At Thom McAn stores.

2 Direct to your plant.

Write today for details of this last-named service and Thom McAn's 4-way employee purchase plan, plus descriptions of the full line of Thom McAn Safety Shoes to...

THOM MCAN SAFETY SHOE DIVISION  
25 West 43rd Street, New York 36, N. Y.



# IMPROVE EFFICIENCY Protect your workers

## IMPROVE PRODUCTION



A specially formulated, sulfonated oil, bland skin cleanser . . . amazingly effective in removing oils, greases, and other industrial grime. Lotion-like effect actually protects the skin . . . leaving it clean, smooth, and supple.

## Neutra-Foam

New mild synthetic skin detergent with excellent foaming properties. Leaves no disagreeable soapy odor on the skin.

Both PH-6 and Neutra Foam are surprisingly economical. Write for literature and samples.

# STEPAN

CHEMICAL COMPANY

3250 S. Kedzie Avenue, Chicago 23, Illinois

# Thermostats Keep Watch On Hot Asphalt Tank

AN INGENIOUS USE of thermostats solved the problem of keeping a continuous check on the operation of a liquid level controller in a hot asphalt tank and of giving a positive visual alarm in case the controller fails to function. The thermostats were adopted because the high temperature and extreme viscosity of the asphalt interferes with the operation of most level indicating instruments. This system of level indication was devised by engineers at the Flintkote Company of East Rutherford, N. J., for use in a 15-ft deep dip tank in which insulated siding is saturated with liquid asphalt at a temperature of about 420°F.

As shown on the accompanying figure, two rows of Thermoswitch units are mounted on opposite walls of the tank. The rows are staggered vertically so that liquid level is actually measured at three-inch intervals. The thermostats, manufactured by Fenwal Incorporated of Ashland, Mass., are connected to a set of three pilot lights. By means of prong-type connectors, the plant men can connect any three thermostats to the three pilot lights, depending on which liquid level is required for a particular operation.

The Thermoswitch units follow the position of the liquid level by responding to the temperature of the asphalt and are set at approximately 375°F to operate the pilot-light circuits. Thus, when a thermostat is submerged in the hot asphalt, its contacts are open; when the liquid level falls, the contacts close. A red light indicates the lowest allowable level; a yellow light, the safe operating level; and a green light, the highest allowable level.

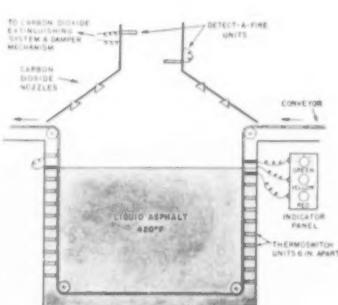
During normal operation the red light is extinguished, while the yellow, "safe operation," light will occasionally blink on and off, indicating that the thermostat is responding to the slight rise and fall of the liquid level as the asphalt is alternately being used and being replenished by the feeder. The green light usually burns

steadily, since the liquid level is normally below the controlling thermostat for that light.

The switch mechanism is entirely enclosed within the cylindrical outer shell of the unit. The unit has an adjustable setting range of 500°F and is constructed to withstand sizable temperature overshoots without adverse effect. It could be safely used for this continuous high heat application.

Regular-type Thermoswitch units (contacts open on temperature rise) were used in this installation so that these thermal controls could also be used in a circuit to cut off a pump or similar feeding equipment as the liquid level rose above the desired point. By the use of inverse-type units (contacts close on temperature rise), a similar system of warning lights could be constructed, except that the lights would be illuminated—rather than extinguished, as in the Flintkote installation—as the liquid level rises. Also, a warning horn or bell could be inserted in series with the upper and lower thermostats to give additional warning that the liquid level is above or below safe operating limits.

An automatic carbon dioxide extinguishing system which blan-



Liquid level measuring system senses the level of hot liquid with Fenwal Thermoswitch units. Plant men connect three thermostats to the indicator panel, depending on the liquid level required. Each of the three thermostats selected extinguishes its corresponding pilot light when covered by the hot liquid, thus indicating the liquid level.



## WELCOME HOME, SERGEANT!



**A Telephone Family in Chicago.** Sergeant Donald McIntyre got a real family welcome from his sister, Mary, a Service Representative; his mother, who was an Operator for seven years; and his brother, Angus, a Plant Assigner. Sergeant McIntyre's father was also a telephone man.

Sergeant Donald McIntyre, former telephone installer, returned home from Korea a few months ago. He served with the 1st Marine Division and was twice awarded the Purple Heart.

He was welcomed back to his telephone job, of course. But in a certain sense he had never been away. For his new pay check reflected the increases he would have received on his old job if he had not joined the Marines.

There are some 16,000 other Bell Telephone men and women now in the service who will receive a similar warm welcome on their return home.

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kets the surface of the asphalt with carbon dioxide in the event of fire. The top of the tank is enclosed by a hood equipped with a ventilating duct and fan for drawing off fumes from the hot asphalt. Mounted inside the duct is a pair of Detect-A-Fire units set at about 500°F. In the event of fire, the detectors immediately actuate the release of carbon dioxide into the hood and tank, and trigger a damper mechanism in the duct to prevent the up-draft from sweeping the flames up through the duct.

### N.Y.U. Completes 89th Army Safety Course

THE HUMAN FACTOR in safety education was emphasized at a luncheon on November 21 commemorating the tenth anniversary of the Safety Training Course for the Military Establishment conducted by New York University's Center for Safety Education.

In presenting certificates to 30 officers and civilians, members of the 39th class to complete the joint N.Y.U.-Army program, Dean Paul A. McGhee of the University's Division of General Education, pointed out that, "The cause of safety today means human lives—not the cost of the jeep that is wrecked but the loss of the boy behind the wheel who may be your boy, or mine, or our neighbor's."

The training received at N.Y.U. by more than 3,200 Army civilian and military personnel over the past ten years was cited by Lieutenant General A. C. McAuliffe, Assistant Chief of Staff for G-1, Department of the Army, at the anniversary celebration held at the Fifth Avenue Hotel.

In a letter read by his representative, Col. Ned D. Moore, Chief of Military Personnel Management, Gen. McAuliffe traced the increase in safety efficiency in the Army over the past few years and declared that the work at the N.Y.U. has "contributed greatly to the improvement in preventive effort."

The importance of the relationship between the University and the Army also was cited by Eliot V. Parker, Army Safety director, and Dr. Henry T. Heald, chancellor of New York University.

Dr. Herbert J. Stack, director of the N.Y.U. Center for Safety Education, gave a history of military safety operations conducted over the past ten years under the military training program. Dr. Walter Cutter, director of the military training program, served as toastmaster.

The 89 classes held in the area since November 1942, have been given for safety officers and civilian safety personnel from Army installations in all parts of the world. In addition, hundreds of three-day seminars have been held throughout the country at all Army commands.

### Safety Leaders in Government Posts

THREE PERSONS prominent in the safety movement have been named to important posts by President-elect Dwight D. Eisenhower.

WINTHROP W. ALDRICH, chairman of the Board of Directors of the Chase National Bank, New York, becomes Ambassador to the Court of St. James. For many years Mr. Aldrich has been a Trustee of the National Safety Council and has been active in many civic and philanthropic movements in the Greater New York area.

MARTIN P. DURKIN, the newly appointed Secretary of Labor, was elected member of the Council's Board of Directors at the Fortieth National Safety Congress. Mr. Durkin, who is president of the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry, was previously director of the Illinois State Department of Labor under three governors.

Mrs. IVY BAKER PRIEST, of Bountiful, Utah, will be Treasurer of the United States in the new administration. Mrs. Priest has long been associated with the Utah Safety Council and is currently vice-president of that organization. She spearheaded the organization of many local councils throughout Utah as affiliates of the State Safety Council. She assisted in setting up the Council's Aviation Division and Ski Safety Committee and program.

During the recent political campaign she served as director of women's activities for the Republican National Committee and was president of the Republican organization for 11 western states.

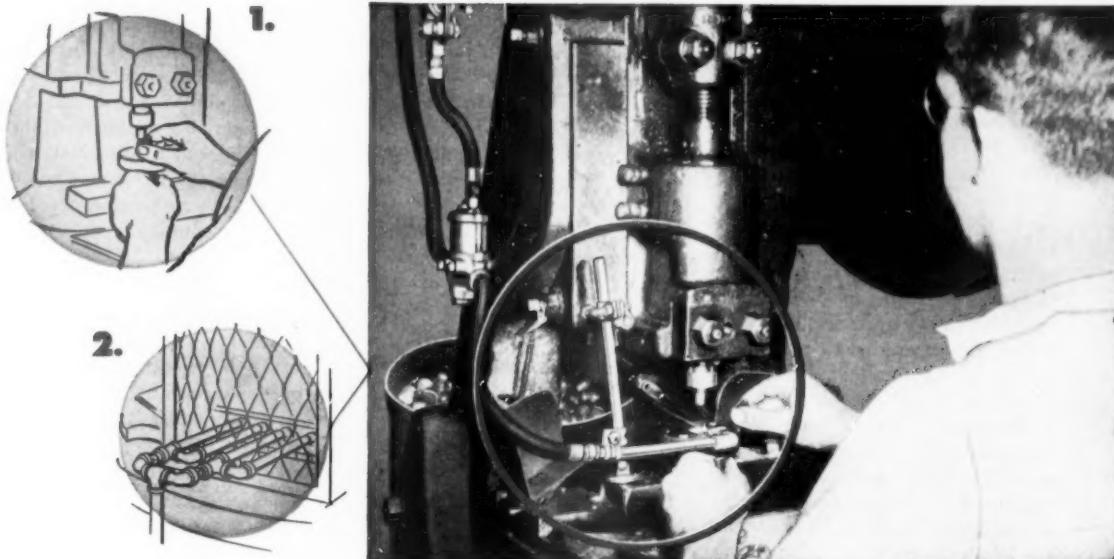
# Give Your Ejection Problems the Air ... and boost production and safety

**1** End slow, dangerous hand removal of work with a Schrader Air Ejection Set. Install Schrader Air Ejection Sets on your power presses—or any machines with moving parts to actuate a cam or sliding tripper. You'll find production soars—up to 100%... operator safety is boosted 50%. Replace hand removal with Schrader Air Ejection and watch your presses take a new lease on life.

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**Schrader Air Ejection Sets** are delivered fully assembled and ready to go to work. Their low cost is more than repaid in just a few weeks.

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# SMALL BUSINESSES and ASSOCIATIONS



By A. M. BALTZER  
Director, Small Business and Associations Program, NSC

## How We Did It

TO THOSE who say that small companies cannot win safety awards we point to the records of a number of winners of the National Safety Council's industrial awards for 1951. We asked several of the winners for the secret of their success. Here are some typical replies:

**FIELDCREST MILLS** (Marshall Field and Company, Inc.), Leaksville, N. C.: The management has been very active and made the plant and machinery as safe as possible—it has convinced supervisors that safety is their responsibility—safety articles in Mill publications reach and sell employees. All master mechanics get extensive safety training. This latter idea gives any small plant the benefit of a number of "safety engineers."

**NICOLETT PAPER CORP.**, West DePere, Wis.: The Safety Committee includes both labor and management, reviews accidents and makes recommendations which are followed up by various department heads for immediate action. The cost of prevention as compared to accidents is very small; insurance loss ratio prior to the program was 24 per cent of premiums—in the first year of the safety program the loss ratio was reduced to 9 per cent. Since the program has been under way only 1½ years further progress is anticipated.

**B AND B CHEMICAL COMPANY**, South Middleton, Mass.: An excessive accident rate (12-15 lost time accidents a year for 150 em-

ployees) was recognized by a new management in an effort to improve efficiency and cut expenses to meet competition. They joined the National Safety Council, appointed a safety director and gave safety requests priority in the maintenance department. Result—in four years, accident frequency dropped 92 per cent!

**WATERFALLS TISSUE CORP.**, Mechanics Falls, Maine (formerly Ponds Tissue Division): The plant nurse was instrumental in approving safety record in company with less than 200 employees. Frequency rate was cut 55 per cent the first year. In 1949, hourly employees were brought into Foremen's Safety Meetings on a rotating basis and made a part of the inspection committee setup. This program, along with safety posters, reduced the accident frequency rate 91 per cent in four years!

## SCPI Starts Group Safety Service

The Structural Clay Products Industry (called "Skippy" for short) has also launched a rather ambitious accident control program. After participating in the Council's Safety Training Institute, C. T. Grimm, Safety Engineer for SCPI, arranged for the Council's Group Service, which will include special Industry Posters, technical publications, an interplant contest and safety awards for employees.

Based on accident rate improvements established during a trial run in North Carolina, Mr. Grimm estimates that a sizable reduction

can be made in the industry's estimated accident loss of \$10,000,000 per year. An intense promotional campaign, including articles in leading trade journals, will pave the way for the introduction of a well-rounded service for this group of small companies.

## U.S. C. of C. Encourages Local Safety Work

In a 20-page booklet, *Industrial Safety Promotion*, the Chamber of Commerce of the United States urges local Chambers of Commerce to promote industrial safety. It suggests collecting of accident information and describes the safety activities of government agencies, insurance companies, National Safety Council and other associations.

The bulk of the booklet is devoted to a city by city description of local chamber safety programs. It describes the tie-in between community safety councils and the National Safety Council and describes material available from the Council and other organizations.

The Chamber of Commerce of the U. S. is to be commended for this fine presentation.

## Let's Act, Too!

There has been a lot of talk about doing something to reduce accidents in small business, but we know you are as interested as we are in getting more action. Here's how:

1. Find out if your industries' trade associations have a safety program. If they haven't, get them started.
2. Get the Executive Committee of your Section working on the problem.
3. Check with your association or with us to be sure they are getting our complimentary *Associations New Letter*. It will help them get interested in safety.
4. Talk up the idea locally.

Your circumstances may be uncongenial, but they shall not long remain so if you perceive an ideal and strive to reach it. You cannot travel within and stand still without.

—James Lane Allen



## Fire can't hide from this "NOSE"

A slow burning fire in your storage spaces, electrical equipment, record vaults, etc., can cause plenty of damage. But not if this "Nose" is on the job!

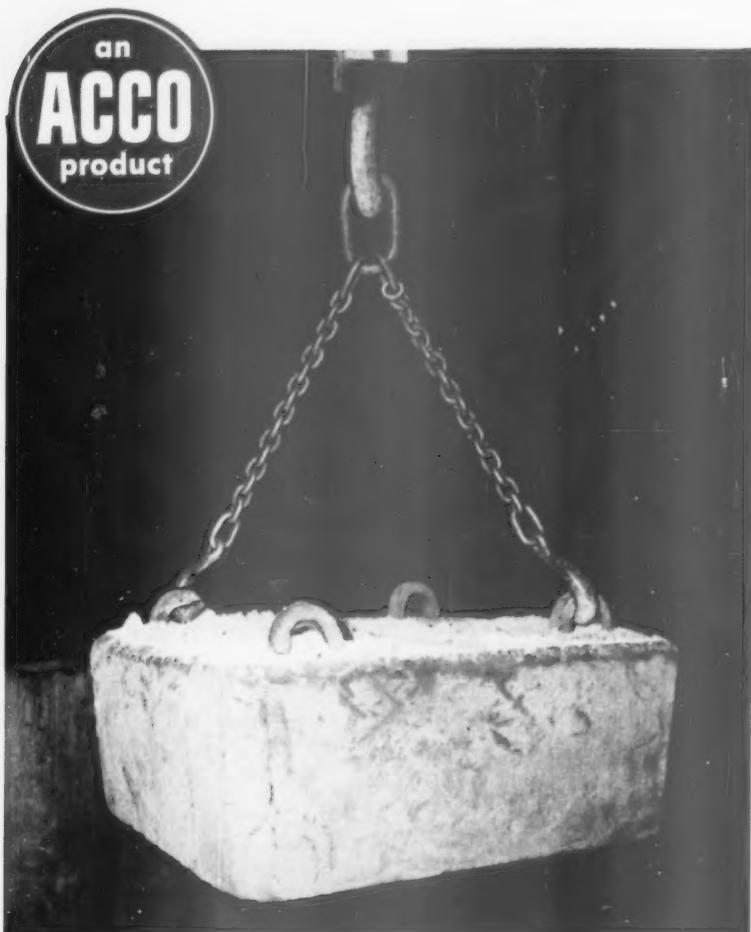
Let the tiniest, slowest-burning fire just *try* to escape attention. The slightest whiff of smoke is collected by this "Accumulator" and sent to the central control panel of the Kidde Industrial Smoke Detector. Instantly, a warning is transmitted to your fire control headquarters or to the local fire department.

The Kidde Industrial Smoke Detector spots smoldering blazes fast, long before there is enough heat to set off automatic heat-actuated extinguishing or alarm devices.

Write today for full information on Kidde fire detectors, CO<sub>2</sub> and foam systems, as well as portable extinguishers.

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**Walter Kidde & Company, Inc., 145 Main St., Belleville 9, N. J.**  
**Walter Kidde & Company of Canada, Ltd., Montreal, P. Q.**



## Why Workmen Like ACCO Registered Sling Chains

• One rigger said: "It's a neat factory-made unit that we know is made properly." A foreman said: "My men look for the identification ring. It's sort of a safety indicator."

Every ACCO Registered Sling Chain is built and tested as a unit and bears the ACCO identification ring. The sling illustrated above has ACCO Foundry Hooks designed for use on casting molds which get very hot. It is engineered for this particular job and will give long service. It is one of the many types of *Registered Sling Chain* made by AMERICAN to handle safely all kinds of lifting jobs.

Check today with your AMERICAN CHAIN distributor who will help you decide on the correct ACCO Registered Sling Chains for your use. Or, write our York, Pa. Office for a copy of **DH-314 ACCO Registered Sling Chain Catalog**.

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### Paul Jones Honored

—From page 42

of mind enjoyed by those who have. And I am grateful that my job does pay off in a measure of such satisfaction.

"For, by the very nature of my work, I am trying to prevent tragedy, heartbreak and suffering. It's my job, you see, to prevent accidents by selling safety to the public through the medium of publicity and public relations.

"Can you imagine anyone not feeling good when he figures that something he may have done in his work has saved a human life? That is safety.

"And can you think of a better way to make a living than by persuading people to be fairer and more decent to other people? That is public relations—practical Christianity.

"As each of you leaves college, I wish for you every possible success—prosperity, security, happiness, prestige. But beyond all that, I wish for you the greater thrill that comes with doing something that will make the going a little easier for someone else—the thrill that comes only with the satisfaction of achievement."

Jones was one of five alumni to receive Citations for Achievement. Others presented awards by Dr. Walter Pope Binns, college president, were: Merrill P. MacDougal, vice president and general manager, Hoerner Corp., Keokuk, Ia.; Mrs. Verlia Short Russell, New York, wife of Ted Malone, radio personality; Rev. Harold G. Sanders, Tallahassee, Fla.; and Dr. Asa E. Martin, professor emeritus, Pennsylvania State College.

Dr. Norman Vincent Peale, New York pastor and author, spoke at the banquet honoring the Citation winners.

### New Ladder Code Approved by ASA

A SAFETY CODE prescribing rules and requirements for the construction, care, and use of the common types of portable wood ladders. (A14.1-1952) has just been approved by the American Standards Association. It is intended to insure safety under normal conditions of usage.

Designed for the voluntary use of ladder manufacturers, these specifications will also serve as the basis of purchase requirements on the part of establishments that use ladders. They will also be an instruction guide in personnel training and in the preparation of safety manuals and posters. State authorities and other regulatory bodies will find them helpful as a guide in the formation of laws or regulations.

The new standard covers definitions of types of ladders, recommendations as to materials for ladders—including a classification of the various species of wood—construction requirements, and the care and use of ladders.

In view of the different kinds of ladders and the many different conditions under which they are used, these specifications should be interpreted literally. Methods employed to assure compliance should be determined by the proper regulatory or administrative authority. Administrative authorities may grant exceptions in special instances if reasonable safety is thereby secured. It is recommended, however, that suggestions involving changes be referred to the sponsor organizations or to the American Standards Association, so that uniform application may be maintained.

The National Association of Mutual Casualty Companies, as administrative sponsor of the project, guided its development through the procedures of the American Standards Association. The American Ladder Institute and the American Society of Safety Engineers were co-sponsors.

Three other standards referred to in this new American Standard supplement it regarding specific uses for ladders:

American Standard Safety Code for Floor and Wall Openings, Railings, and Toe Boards, A12-1932.

American Standard Safety Code for Building Construction, A10.2-1944.

American Standard for Construction and Maintenance of Ladders and Stairs for Mines, M12.1-1946.

Copies of the *American Standard Safety Code for Portable Wood Ladders, A14.1-1952*, are available from the American Standards Association, 70 East 45 Street, New York 17, at 75 cents per copy.



## ***ACCO Registered DUALOC Slings are Lifting Tools***

• DUALOC Slings, whether strand-laid or cable-laid, provide the material handling engineer with a tool of known strength and safety factor throughout. The design is modern . . . tested . . . and proved in service.

The DUALOC Ending insures sling strength equal to the FULL catalog strength of the wire rope, and the "Registry" specification requires that all fittings have strength equal to that of the wire rope. These are the basic reasons why ACCO Registered DUALOC Slings have set industrial sling standards.

You can get DUALOC Slings and Fittings from the stock of your ACCO Sling distributor. See him today or write our nearest district office for his name.

**ACCO**

\*Trade Mark Registered Patent No. 2463199



**WIRE ROPE SLING DEPARTMENT  
AMERICAN CHAIN & CABLE**

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Registered  
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Slings**

# THE SAFETY LIBRARY



Books, Pamphlets and Periodicals of Interest to Safety Men

## BOOKS AND PAMPHLETS

### Industrial Lighting

*American Standard Practice for Industrial Lighting* (AII.1-1952), Prepared by the Committee on Industrial Lighting, Illuminating Engineering Society. Copies may be obtained from Publications Office, Illuminating Engineering Society, 1860 Broadway, New York 23. 40 p. Price 50 cents, quantity prices on request.

THIS NEW STANDARD for industrial lighting has recently received full approval of the American Standards Association. Completely revising the first recommended practice published ten years ago, the new standard is designed to meet today's superior lighting requirements and covers many specific lighting problems not included in the 1942 report. Since then studies and reports have covered lighting for woolen and worsted mills; canneries; commercial bakeries; inspection lighting problems such as supplementary lighting and lighting for machining small metal parts, and other industrial lighting tasks.

The new Standard Practice analyzes the factors affecting industrial seeing tasks and the elements of good illumination required to perform these tasks. A wide variety of these tasks within specific manufacturing categories from *Airplanes* through *Woodworking* are listed alphabetically in convenient tables giving required foot-candles for each. Necessary quantities of illumination; qualities of light sources; distribution and diffusion; brightness ratios and reflectance values of surrounding areas are also explained and recommended. Table VI, Classification of Visual Tasks and Lighting Techniques, lists many general characteristics of industrial tasks

and recommends lighting techniques for each.

Daylighting and its proper control; artificial light and lighting systems are explained in detail, and methods and recommendations suggested. Programs for maintenance and cleaning of lighting fixtures and room surfaces are also included. Appendices deal with advantages of good illumination; brightness and brightness ratios; adequate electrical wiring; and light sources. The booklet is fully indexed and illustrated.

The new *American Standard Practice for Industrial Lighting* contributes much to the increased production needs to meet today's expanded economy both for civilian and military requirements. The place of lighting in this economy has been amply proved and the new Standard Practice will be helpful to architects; consulting engineers; construction engineers; lighting company engineers; and others planning to gain maximum use of improved lighting for increased production.

### Accident Statistics

*Work Injuries in the United States During 1950*. Published by U. S. Bureau of Labor Statistics, 1952. 33p. For sale by the Superintendent of Documents, Washington 25, D. C. 25c. (Bulletin No. 1098).

### Civil Defense

*Fire Effects of Bombing Attacks*. Published by Federal Civil Defense Administration, 1952, 42p. For sale by the Superintendent of Documents, Washington 25, D. C. 20c. (TM-9-2).

*Fire Safety in the Atomic Age. A "First Book."* Published by National Fire Protection Association,

60 Batterymarch St., Boston, Mass. 1952. 72p. \$3.00.

### Explosives

*Blasters Handbook*. Sesquicentennial edition. Revised. Published by E. I. du Pont de Nemours & Co., Wilmington, Del. 1952. 477p. \$1.75.

### Fire Protection

*Standards for the Installation, Maintenance and Use of Proprietary Auxiliary and Local Protective Signaling Systems for Watchmen, Fire Alarm and Supervisory Service*. Published by National Board of Fire Underwriters, 85 John St., New York 1952. 30p. Free. (NBFU Pamphlet No. 72).

*Standards for the Installation of Standpipe and Hose Systems*. Revised. Published by National Board of Fire Underwriters, 85 John St., New York 38, N. Y. 1952. 16p. (NBFU—Pamphlet No. 14).

### Food Industry

*Slaughtering, Meat Packing and Rendering Occupational Hazards to Young Workers. Report No. 10*. Published by U. S. Bureau of Labor Standards, 1952. 37p. For sale by the Superintendent of Documents, Washington 25, D. C. Price 20c. (U.S. Department of Labor—Bulletin No. 157).

### Resuscitation

*Methods of Artificial Respiration*. Published by U. S. Coast Guard, 1952. 12p. For sale by the Superintendent of Documents, Washington 25, D. C. Price 10c.

### Small Plants

*Small Plant Health and Medical Programs*. By Margaret C. Klem and Margaret F. McKiever. Published by U. S. Public Health Service, 1952. 213p. For sale by the Superintendent of Documents, Washington 25, D. C. 50c. (PHS Publication 215).

## MAGAZINE ARTICLES

### Aeronautics

*Fuels for Jet Aircraft*. National Fire Protection Quarterly October 1952. p. 147.

—To page 90

The new plastic "707" Safety Goggle combines

**Protection — Comfort — Appearance**

**PROTECTION** — is still the basic purpose of this new style goggle. Its acetate frame has been designed to retain the safety lens even when subjected to severe impact. In addition to its general use throughout industry where eye hazards are encountered, the non-sparking "707" is especially suitable for use in chemical and electrical plants.

**MODEL 707 PLASTIC FRAME SPECTACLE TYPE SAFETY GOGGLE**



**COMFORT** — Wire core temples with cable wound ends permit easy adjustment for a snug, comfortable fit. This light weight goggle with large wide flaring nose pads receives the utmost in worker approval.

**APPEARANCE** — Flesh tint, high line temple, keyhole bridge and drop-eye shape combine for a distinctly personal look.

The "707" is available with flat, 1.25 or 6.00 curve, heat treated safety lenses.

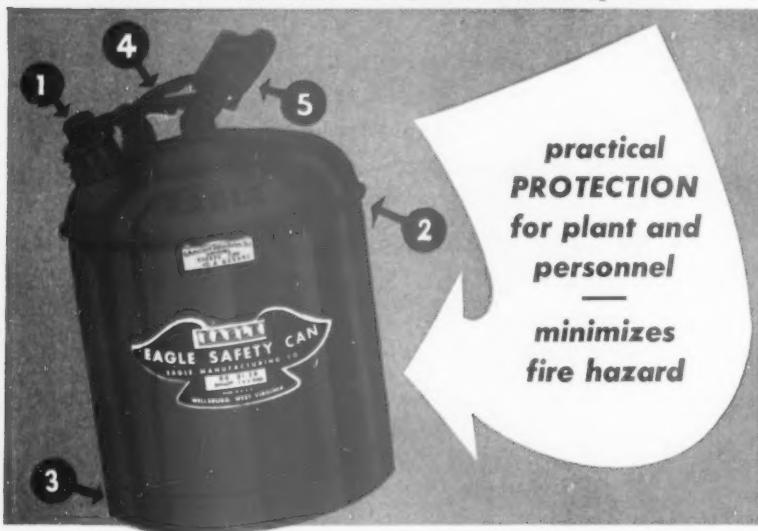
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**PENNSYLVANIA OPTICAL COMPANY**  
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# Announcing THE NEW **EAGLE** SAFETY CAN

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This brand new, modernly designed EAGLE Safety Can is a boon to every industry where flammable liquids must be handled, transported and stored.

## EXCLUSIVE EAGLE FEATURES

- 1 **Guard Cap**—protects and seals the valve cap—eliminates spilling.
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- 3 **Reinforcing Bottom Band of 16-gauge steel**—for extra strength.
- 4 **Cam-Acting Connecting Arm**—tightens seal on pouring spout if can is upset or bumped... prevents spilling or leakage.
- 5 **Combination Free-Swing Carry and Operating Handle**—lies flat, out-of-way when not in use. To pour, engage handle notch and press down.

Three sizes available UI-50—5 gal. cap., UI-25—2½ gal. cap., UI-10—1 gal. cap.

Order now from your nearest distributor or write manufacturer for further details.

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### Lighting Data Available in RLM Book

DETAILED SPECIFICATIONS for 18 of the most commonly employed incandescent and fluorescent industrial lighting units are contained in the 44-page 1952 RLM Specifications book recently issued. Included are two new specifications, as well as important revisions and clarifications of existing specifications, and new tables of typical coefficients of utilization and light distribution curves.

Due to increased employment of high-mounting units for high-bay industrial installations, two new specifications have been established for such units.

Several important revisions in existing RLM Specifications are incorporated in this latest edition. The most important of these are the clarification of wattage standards covering Slimline fluorescent lamps and new, expanded articles on specification of ballasts, including ballast temperature, rated voltage, etc.

Wherever applicable, a light distribution curve and coefficients of utilization table have been included for both incandescent and fluorescent. Computed by the Electrical Testing Laboratories, N. Y., this informative data is based on composite distribution curves of all fixtures certified under each specification.

Specifications for porcelain enamel are an illustration of the specification standards established by the Institute. All RLM reflectors must be completely covered with porcelain enamel, no thicker than .025 inch, as measured by a magnetic thickness gauge of .001 inch accuracy. The reflector steel must be of enameling steel not less than .032 inch in thickness after fabrication.

Free copies of the 1952 Edition *RLM Standard Specifications for Industrial Lighting Units* may be obtained by writing to the RLM Standards Institute, 326 W. Madison Street, Chicago 6.

An egotist is not a man who thinks too much of himself; he is a man who thinks too little of other people.

## Wins Award in Industrial Hygiene

WARREN A. COOK, director, Division of Industrial Hygiene and Engineering Research, Zurich-American Insurance Companies, Chicago, has been selected to receive the Donald E. Cummings Memorial Award of the American Industrial Hygiene Association for 1953. The award, a high honor in this field, is made in recognition of "outstanding contribution to the knowledge and practice of the profession of industrial hygiene." Concurrently Mr. Cook has been designated to present the Cummings Memorial Lecture at the next annual meeting of the A.I.H.A., to be held in April in Los Angeles.

The award was established in 1943 in memory of the late Donald E. Cummings, one of the founders and early presidents of the A.I.H.A.

Mr. Cook, who has been with the Zurich-American Insurance Companies for the past 15 years, has served as president of the American Industrial Hygiene Association; editor of its quarterly publication; and associate editor of the *Journal of Industrial Hygiene and Toxicology* and also of *Industrial Medicine and Surgery*. He is at present a member of the Industrial Hygiene Foundation's Committee on Chemistry and Toxicology; vice chairman of the Industrial Hygiene Section of the American Public Health Association; chairman of the Development Committee of the American Industrial Hygiene Association; a member of the Committee on Toxic Gases of the American Standards Association; and a member of the committee on Methods of Atmospheric Sampling and Analysis, American Society for Testing Materials.

Mr. Cook is the author of many papers on technical and general aspects of industrial hygiene and is perhaps most widely known for his report on "Maximum Allowable Concentrations of Industrial Atmospheric Contaminants," which is used extensively as a reference work in this field.

He who hesitates is bossed.



## ACCIDENTS COST MONEY!

### HANDLE SAFELY with CLARK EQUIPMENT

#### ACCIDENTS COST MONEY!

According to the National Safety Council, the direct cost of industrial accidents in 1948 was nearly 1½ billion dollars—and 22% of all disabling industrial injuries occurred to employees who were handling materials. These figures do not include such indirect costs as production slow-down, or the training of new workers to replace the injured. The tremendous cost of materials handling accidents is a dollars-and-cents problem that faces every plant in America.

Three factors determine safe handling: safe handling equipment, a safe handling system, and safety-trained employees.

For safe equipment, more and more leading industries have come to Clark; a generous safety factor is an integral part of the design and construction of every Clark machine. For assistance in planning safe, efficient handling systems, more and more alert business men have called on

their Clark dealers. And in teaching the rules of safe driving to their industrial truck operators, many companies have found Clark's "Safety Saves" booklet informative and helpful.

Let your Clark dealer show you how to build a modern handling system around Clark trucks. You'll cut costs, cut accidents. Handle safely, with Clark equipment.

Clark's "Safety Saves" booklet is available upon request. And a new "Safety Saves" movie is nearly completed. It will show on-the-job examples of how a fork truck should be driven, and also how it should not be driven. Everyone with a stake in industrial safety should see it—for industrial truck operators, it will pay dividends in safer driving. To make sure that you receive an early showing, check the coupon and mail it in now.



# FOR DISTINGUISHED SERVICE



THREE types of awards for outstanding performance in industrial accident prevention are provided for in the "Plan for Recognizing Good Industrial Safety Records" adopted in January, 1952, by the Industrial Conference and the Board of Directors of the National Safety Council.

The three types of awards are:

1. The AWARD OF HONOR, the highest award, replaces the Distinguished Service to Safety Award. It goes to industrial establishments whose experience meets rigorous statistical standards, even though it may not be injury-free. It also goes to those which complete 3,000,000 manhours without a disabling injury.

2. The AWARD OF MERIT has similar but less exacting requirements. The standards for non-perfect records are somewhat lower, and the minimum number of injury-free manhours needed to qualify is 1,000,000.

3. The CERTIFICATE OF COMMENDATION is given only for no-injury records covering a period of one or more entire calendar

years and involving exposure of 200,000 to 1,000,000 manhours.

For qualifying calendar-year experience, all three types of awards are made automatically on the basis of annual reports submitted to the Council by members. The Award of Honor and the Award of Merit may also be made on special application in two types of cases:

1. Where a qualifying total of injury-free manhours is accumulated in some period other than a calendar year.

2. Where a current period of two or more years is to be used in evaluating injury rate improvement.

Publication of awards under this plan succeeds "The Honor Roll" department formerly published in the NATIONAL SAFETY NEWS. The foregoing is but a synopsis of the award plan. For a more complete and precise statement of eligibility requirements, members should refer to the plan itself. Details may be obtained by writing to Statistics Division, National Safety Council.

## AWARDS OF HONOR

The Baltimore & Ohio Railroad Company, (Entire company).

Bethlehem Steel Company, Bethlehem, Pa., Concentrator Plant.

Central Illinois Light Company, Peoria, Ill. (Entire company).

Georgia Power Co., Atlanta, Ga. (Entire company).

Laclede-Christy Company, St. Louis, Mo., Laclede Plant.

Linde Air Products Co., Division of Union Carbide & Carbon

Corp., Speedway Laboratory, Indianapolis, Ind.

Otter Tail Power Company, Fergus Falls, Minn., (Entire company).

Republic Steel Corp., South Chicago Works.

The Texas Mexican Railway Company, Corpus Christi, Texas (Entire company).

United States Steel Company, Michigan Limestone Division, Kaylor Limestone Mine.

Wisconsin Public Service Corp.,

Green Bay, Wis. (Entire company).

## AWARDS OF MERIT

Arvin Industries, Inc., Radio Division.

Bethlehem Steel Company, Bethlehem, Pa., Ellsworth Div.

Bethlehem Steel Company, Johnstown Div.

Bethlehem Steel Company, Fairfield Plant, Buffalo Tank Corp.

Cambridge Electric Light Company, Cambridge, Mass. (Entire company).

Carboly Company, Inc. (Entire company).

Carolina Power and Light Company (Entire company).

Chrysler Corporation, Parts Division, McKinstry Plant, Mopar-Chrysler Div.

Chrysler Corporation, Plymouth Motors.

Consolidated Mining and Smelting Co., Chapman Camp, Sullivan Concentrator.

Duquesne Light Company, Pittsburgh, Pa. (Entire company).

Eli Lilly & Co., Indianapolis, Ind. (Entire company).

General Electric Company, New York (Entire company).

Indiana Harbor Belt Railroad (Entire company).

Indiana and Michigan Electric Company, Fort Wayne, Ind. (Entire company).

Kansas Gas and Electric Co., Wichita, Kan. (Entire company).

The Long Island Rail Road Company, Jamaica, N. Y. (Entire company).

Madison Gas & Electric Company, Madison, Wis. (Entire company).

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Gulfport, Miss. (Entire company).  
Montauk Electric Company, Fall River, Mass. (Entire company).  
Norfolk & Western Railway Company, Roanoke, Va. (Entire company).

North American Cyanamid Ltd., Welland Works, Niagara Falls, Canada (Entire company).

The Ogden Union Railway & Depot Company—Terminal, San Francisco, Calif. (Entire company).

Oklahoma Gas and Electric Company, Oklahoma City, Okla. (Entire company).

The Pennsylvania Railroad, Altoona Works.

Peoria & Eastern Railway (Entire company).

Reynolds Metals Company, Richmond, Va., South Plant.

Reynolds Metals Company, Gary, Ind. Plant.

St. Louis-San Francisco Railway Company, St. Louis, Mo. (Entire company).

Southern Natural Gas Company, Birmingham, Ala. (Entire company).

Southwestern Gas and Electric Company, Shreveport, La. (Entire company).

Tampa Electric Company, Tampa, Fla. (Entire company).

Tennessee Eastman Co., Kingsport, Tenn., Acid Division.

Tennessee Eastman Co., Tenite Division.

U. S. Naval Air Station, Moffett Field, Calif., Public Works Department.

U. S. Naval Supply Depot, Ogden, Utah, NSD Clearfield.

United States Rubber Company, Naugatuck Synthetic Rubber Plant.

### CERTIFICATES OF COMMENDATION

Brown-Forman Distillers Corp., Louisville, Ky., Bottling Division.

Brown-Forman Distillers Corp., Labret & Graham Div., Versailles, Ky.

Congoleum-Nairn, Inc., Felt Base Covering-Roofing Mill Div., Cedarhurst, Md.

The Dixie Traction Company, Covington, Ky. (Entire company).

Interstate Bakeries Corp., Schulze Baking Co., Omaha, Neb.

Interstate Power Company, Dubuque, Ia. (Entire company).

Lehigh Portland Cement Co.,



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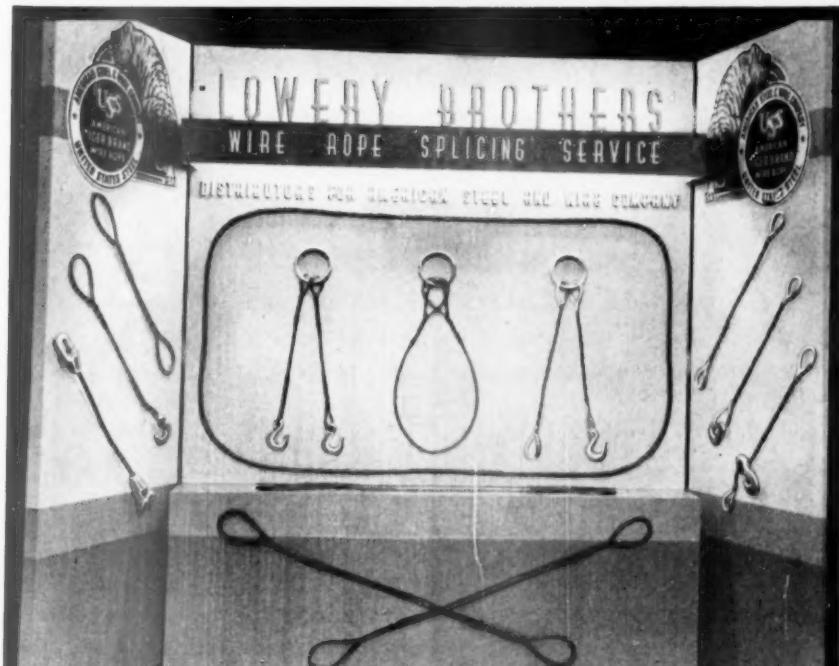
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Easton, Pa., Sandt's Eddy.

Safeway Transit Co., Wilmington, N. C., Motor Bus Unit.

Tennessee Eastman Co., Kingsport, Tenn., Cellulose Esters & Plastics Development Dept.

Union Carbide & Carbon Corp., Paducah, Ky.

Union Carbide & Carbon Corp., Chicago, General Offices.

United Motor Coach Company, Des Plaines, Ill. (Entire company).

USDA Forest Service, Chattahoochee National Forest.

**Better Wiring Stressed In Color Movie**

THE IMPORTANCE of adequate wiring in homes so that full advantage can be taken of the many conveniences of modern electrical living is told in a new 28-minute, 16mm, live-action sound movie, produced and released by National Electric Products Corp. of Pittsburgh. In full color and enacted by a cast of well-known actors, "Octopus in the House" stresses the need of well-planned wiring for the home of today.

The approach is humorous, yet much practical information about efficient planning for electrical living is contained in the story. This deals with Bob and Sally Jones who live in a home with outmoded wiring, and yet endeavor to make full use of all the latest electrical equipment. This task is complicated by Bob's use of "octopus plugs" and extension cords, with resultant overloading of the antiquated circuits.

Graphic illustrations of the effects of overloaded circuits on appliance operation and the safety of the home are given. Harmony in the Joneses home is restored when an electric utility salesman friend intervenes and convinces them they should modernize their wiring.

Information about booking the picture may be obtained from National Electric Products Corp., Chamber of Commerce Building, Pittsburgh 19, Pa.

Asking a woman her age  
Is like buying a second hand car;  
The speedometer's been set back,  
But you can't tell just how far.



May the Spirit of Christmas,  
the joy and laughter,  
Remain in our hearts  
through the long year after



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National Safety News, January, 1953

# INDUSTRIAL HEALTH



Abstracts of current literature  
on Industrial Hygiene, Medicine, and Nursing

BY F. A. VAN ATTA  
Industrial Department, NSC

## Measuring Noise

*The Measurement of Industrial Noise*, by G. L. Bonvallet. The American Industrial Hygiene Association Quarterly 13:136-157 (September 1952).

INDUSTRIAL NOISE conditions have in recent years become of increased importance because of the possibility of loss of hearing. It, therefore, becomes necessary to survey methods of measuring noise and the related equipment so that required measurement information and techniques can be simplified and standardized if possible for the benefit of personnel who are concerned primarily with permissible noise levels and the control of noise conditions. The present work is a manual specifically for these purposes.

The attempt has been made to include only material that is of interest to the safety man, the industrial hygienist, and the engineer, all of whom are directly concerned with the problem. Acoustical principles and equipment information which are necessary to an understanding of the noise measurement problem are described. The presentation is such that the worker can use the material with but little previous experience in acoustics.

Industrial noises can be measured with available equipment using techniques which have proven to be satisfactory. The procedures involve making measurements in places where workers are exposed to noises, taking care to pay attention to exposure conditions. The readings are made in decibels in the various octave bands since these appear to have better correlation with industrial

deafness than other types of analysis.

In many problems where control and reduction of noise are involved, it is advantageous to represent the noise by a single number. In such cases, the loudness of the noise is an important characteristic. A technique for calculating the loudness of a broad band noise is described.

Since this material was prepared for the plant personnel to whom the measuring equipment and techniques are new, it has become necessary to point out the new methods, their shortcomings, and necessary precautions in their use. It is hoped that this material will assist these workers in techniques of noise measurement and interpretation.

## After the A-Bomb

*Delayed Radiation Effects at Hiroshima and Nagasaki*, by John C. Bugher. Nucleonics 10:18-21 (September 1952).

JAPANESE SCIENTISTS, within a few hours of the detonation of the atomic bombs over Hiroshima and Nagasaki, began observations on the effects of these explosions on humans. The first observations were done under extreme difficulty both because of the complete disruption of all community life in the two cities as a result of the bombing and because of the typhoon which inundated Hiroshima a few days after the bombing and killed a majority of the first scientific survey team. When the American Military Forces entered the area a little later they added their efforts and personnel to those of the Japanese and initiated a cooperative study.

At the urging of this early group Secretary of the Navy Forrestal recommended and President Truman directed on November 26, 1946, that a research organization for a long-time study of the human results of the bombings be sponsored by the National Research Council and financed by the Atomic Energy Commission. The Atomic Bomb Casualty Commission was accordingly set up and has constructed laboratories and recruited personnel at Hiroshima and Nagasaki and a third office in Tokyo. At the present time the Commission has a staff of approximately 900 of whom 150 are American citizens.

As the populations have returned to the city, careful census has been made to determine the radiation exposure of each individual who survived the bombings and it has been found that a control group of unexposed individuals can be set up out of residents of the city who are living under essentially identical conditions but who were not living in the city at the time of the explosion.

Surveys now in progress have shown that the incidence of leukemia among persons exposed to the bomb within a radius of 2,000 meters (2,188 yards) has increased several fold and that their experience up to the present is about comparable to that of radiologists and roentgenologists in the United States.

There has also been a great increase in the incidence of cataracts. People exposed within about a radius of 1,200 meters show about 10 per cent changes of

—To page 85

RIGHT IN YOUR OWN BACK YARD...

BY WEST

EVERYBODY ON THE PANEL HITS THE JACKPOT WHEN HUGH GUESSIT TRIES TO SLIP OVER A FAST ONE ON FLOOR CARE.

DON'T LET THIS FLOOR YA, FELLA'S! MR. I. WANNAKNOW ASKS, "DOES THE WEST FLOOR PRESERVATION PROGRAM WORK FOR ALL TYPES OF FLOORS."

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TYPE OF FLOOR	INSTALLED COST* OF 50,000 SQ. FT.
Asphalt Tile	\$15,000
Concrete	18,000
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Vinyl Tile	44,000
Ceramic Tile	65,000
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Marble	300,000

\*Based on reports of reliable flooring contractors in urban areas.

How much will it cost you to replace worn-out floors today? The chart gives you some idea.

But, your floors *don't have* to wear out. They can be protected almost indefinitely.

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## Home Folks Help

(From page 39)

sponsible for making detailed reports on all accidents involving injury in their departments. These reports not only spotlight the direct cause of the accident but require that remedial action be taken immediately to eliminate the cause.

Prompt attention to correcting accident hazards by the mill's Maintenance Department is credited with helping to reduce accidents. Unless such cooperation is obtained, all the training given to employees in how to recognize hazards is futile. Less than one-third of all injury-accidents at Luke are traceable to "unsafe conditions."

With the assistance, support and counsel of Dan R. Staley, personnel director, training a new employee in safety starts before he reports on the job. He is given a short talk about the reasons for all the emphasis on safety, the specific hazards in the department to which he is assigned, general mill-wide hazards, smoking regulations, identification and use of fire extinguishers and the various types of protective equipment available for his use. Then he receives a 62-page safety handbook describing in detail mill-wide and departmental safety rules.

Enthusiasm in safety is stimulated through many media—posters, monthly newsletters, intra-plant competition, direct mail letters to employees' homes, movies, live demonstrations, prepared safety tests, annual dinners, individual safety award pins.

A weekly safety poster contest has proved highly successful in building interest. Each week, a miniature safety poster with a pertinent slogan is inserted in all pay envelopes. A safety committeeman later draws the name of one employee from a barrel in the safety office. The employee is then contacted on his job. If he has the slogan insert on his person and has memorized it; if he is wearing safety shoes (on a job requiring them); if he can tell the number of consecutive days the mill has completed without a disabling injury (the figure is prominently displayed at the main gate), and if his department has not had a disabling injury during the current year, he wins a cash jackpot.

Simultaneously, a safety supervisor telephones the employee's home. If his wife or mother knows the safety slogan or the number of days the mill has completed without a lost-time accident, she too receives a cash award.

Believing that wives and mothers of employees can be helpful in cutting down plant accidents, a direct mail campaign is conducted for them. In letters, periodically, it is called to their attention that men engaged in hazardous work need clear and undisturbed minds to avoid injuries. The help of these relatives is solicited to encourage husbands or sons to be careful on their jobs.

To carry the safety crusade outside the plant, the company annually sponsors safety rallies in nearby communities, featuring parades, store window displays, demonstrations and entertainment. The program is not confined to plant safety; it encompasses traffic and home safety as well. Safety is a 24-hour proposition. Frequent meetings on safety are held with community officials, schools, service clubs and fraternal organizations. Volunteer fire departments are assisted in their training programs by the company's safety men.

The company recently began organizing home safety committees in all nearby communities. Members enrolled include employees, their families, and neighbors. Each is given a membership certificate, receives a monthly bulletin and attends a monthly or quarterly meeting. Interest in attending the meetings is stimulated by arranging for special entertainment, movies, door prizes.

This off-the-job safety program was conceived because:

1. Accidents in the home far outnumber those in the mill—the ratio is eight to one.

2. Worry and concern of employees over accidents affecting members of their families, tend to lower their own efficiency and increase industrial mishaps.

3. An employee, through the loss of time and income due to an accident in the home or on the highway, upsets the economic condition of his entire family.

In addition to the "crusading" efforts of the mill to keep all employees and their families filled with enthusiasm for the safety idea, the company also furnishes the best obtainable, Bureau-of-

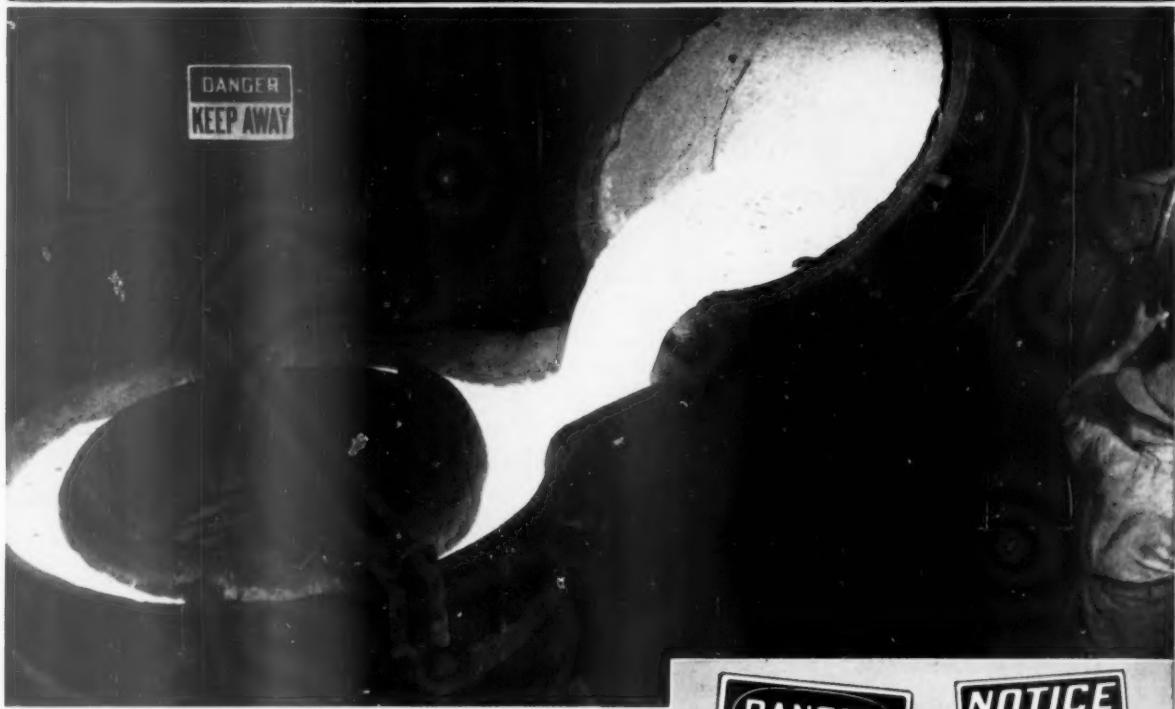
—To page 76



Enthusiasm for safety is stimulated by a large safety committee. To iron out specific problems, department by department, committee members meet in small groups.

# STONEHOUSE SIGNS

For ACCIDENT PREVENTION



## White Hot Metal

...just one process of American Industry in action. And it's evident how such production holds ever present hazards for workers.

To prevent accidents, reduce hazards, is one of Industry's pressing problems...to safeguard men and women in industrial plants across the nation.

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...teach your employees to be careful...to take no chances. The hundreds of Stonehouse stock-worded Accident Prevention signs constantly promote the spirit and practice of Safety.

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## Personals

### Klees Named Chief Safety Engineer

Appointment of EARL M. KLEES to the newly-created position of chief safety engineer for The Philadelphia and Reading Coal and Iron Company, is announced today by George A. Roos, vice-president.



Earl M. Klees

Mr. Klees, who has held the position of assistant to the division superintendent of P and R's Ashland Division since August 1, 1951, originally came to the company from the United States Bureau of Mines where he spent seven years as a federal mine inspector.

He is a native of Natalie, Pa., and graduated from Mt. Carmel Township High School in 1924. He completed Pennsylvania State College Extension Courses in mining, foundations of engineering and mapping and surveying.

Mr. Klees first worked at Colonial Colliery at Natalie in 1925, starting as a driver. He went through the jobs of loader, miner's laborer and miner from 1925 to 1934. He was then appointed fire boss, and became, successively, assistant mine foreman, mine foreman and inside superintendent at Colonial and Greenough Mines of

the Colonial Collieries Corporation. He worked as superintendent of mechanical mining for Delano Anthracite Coal Company in 1944 before joining the U. S. Bureau of Mines that same year.

### Wolff Joins ASSE Staff

CHARLES S. WOLFF has joined the headquarters staff of the American Society of Safety Engineers as assistant to the managing director.



Charles S. Wolff

Mr. Wolff, a native of Chicago, worked for the Peoples Gas Light and Coke Company for 2½ years before entering the University of

### SAFETY ENGINEER WANTED

Large national manufacturer located in Chicago requires the services of a man capable of assuming responsibility for its safety program, including accident prevention, investigations, reports, etc. Should be familiar with State Health and Safety Codes and Regulations. This is an excellent opportunity to become permanently associated with a progressive organization. In reply please submit complete personal and experience resume and salary requirements in confidence. Address Box 428, NATIONAL SAFETY NEWS.

Illinois. His studies were interrupted by a three-year tour of duty with the Corps of Engineers in the Southwest Pacific.

Returning to the University he received the degree of Bachelor of Science in Civil Engineering and for several months was employed by the Cook County Highway Department in its Engineering Division. In 1948 he joined the Hartford Accident and Indemnity Company as field engineer.

CHARLES A. DEMONGE has been named personnel director of Kelsey-Hayes Wheel Co., Detroit, Mich. A veteran of 35 years of safety and personnel work, Mr. DeMonge was safety director at Kelsey-Hayes.

He was one of the originators and charter members of the Detroit Industrial Safety Council, is past general chairman of the executive committees of the Power Press and Forging and Automotive and Machine Shop Sections of the National Safety Council, and a member of the Metals Section executive committee. He has served on various committees of the President's Industrial Safety Conference.

Mr. DeMonge is a member of the American Society of Safety Engineers, Society of Professional Safety Engineers, Detroit Industrial Safety Council and has served as president of the Michigan Old Timers Club, 1942-43.

## Obituary

### WILLARD A. ANDERSON

WILLARD A. ANDERSON, plant engineer of the United States Government Printing Office, died at his home in Silver Spring, Md., November 28, following a prolonged illness.

Mr. Anderson served as general chairman of the Printing and Publishing Section of the National Safety Council for the year ending October 21, 1952, and held various offices in the Section from the

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RESPIRATOR**

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*Willard A. Anderson*

time of its formation as a committee in 1947. He was an active member of the Engineering and Research Council of The Graphic Arts Industry, Inc., and was chairman of the Safety Committee of The International Association of Printing House Craftsmen at the time of his death.

A native of Chicago, he was educated in the public schools of that city, and was a Civil Engineering graduate of Illinois Institute of Technology. He had been associated with the Government Printing Office since 1930 and served as plant engineer from 1944 until his death.

Mr. Anderson was a member of the Advisory Committee of the Federal Safety Council and a member of the Federal Fire Council. He was a member of the American Society of Civil Engineers, the Illuminating Engineering Society, and the honorary societies of Tau Beta Pi and Chi Epsilon.

Mr. Anderson was well known throughout the printing industry for his pioneer work in the functional use of color and lighting.

**HENRY W. PUETZ**

HENRY W. PUETZ, safety engineer for Lumbermen's Mutual Casualty Company, at Milwaukee, Wis., died December 7 of a heart attack. He was 62 years old.

Mr. Puetz was born in Chicago. After graduation from Illinois Institute of Technology he became associated with Illinois Manufac-

turers Association, working up to the position of chief engineer. He later joined Lumbermen's Mutual as safety engineer.

Mr. Puetz was a registered professional engineer, a member of the American Society of Safety Engineers and a member of the Army Ordnance Association. During World War II he was a consultant to the Army Ordnance in Washington.

**Urge Safety Shoes  
On Construction Work**

ADOPTION of safety toe shoes as standard protective equipment in the construction industry would reduce foot and toe accidents by 85 per cent, according to a report submitted to the Safety Committee of the National Constructors Association, an organization composed of builders of chemical plants, steel mills and petroleum refineries.

The majority of foot and toe accidents are caused by falling or dropped material and nail punctures and are suffered by the laborers craft, one of the largest crafts on a construction project. The report indicated that safety shoes are not generally used in the construction industry.

One of the basic difficulties in establishing a satisfactory safety shoe program in the industry is the characteristic type of operation. An organization may have 20 to 30 jobs, employing from a score to several thousand men each and scattered across the United States and Canada. It would not be feasible to have a shoe room or shoe-fitting personnel on each job.

To meet the difficulty, the report recommended the use of mobile shoe units that would periodically visit all field jobs. The mobile units are staffed with competent shoe salesmen, who handle fittings and keep records of each man's size for future use. Previous to the visit, a film on the need for safety shoes would be shown to construction workers.

The report was prepared by H. B. Wallace, engineering and construction division, Koppers Company, Inc.



# JOB-TESTED

IN THE WORLD'S TOUGHEST LABORATORY

... on the feet of America's workers

Make your own tests. See why industry turns to Vul-Cork and Vul-Cork Neoprene soles to help reduce accidents and keep workers comfortable. Vul-Cork does everything you ask of a safety shoe sole, in nearly all kinds of jobs. It is also proving exceptionally durable and comfortable on abrasive surfaces which wear out ordinary soles — surfaces such as cinders, sand and cement floors.

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# Asbestos Gloves for HOT Jobs



Industrial  
No. 200-14

To be sure of the Genuine  
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There's a *Big* difference between Asbestos Gloves and you can *tell* the difference when you get Industrial's No. 200-14 asbestos gloves. *The quality stands out* in your hands and on your hands. Seamless one piece construction from tip to top. No seams at the wrist or working edges to pull out or burn out just when protection is needed most on a hot job. Made lined or unlined. Standard lining is an 8 ounce knitted cotton material anchored in each finger and thumb. Knitted wool or industrial wool lining on request. *The quality stands out* in the correct design and proportions of the big roomy pattern that allow a cool, comfortable fit. Double sewn throughout. Standard 11, 14 and 23 inch lengths. Other lengths and many special types of asbestos gloves and mittens are available both plain and leather reinforced. The quality of all these items stands out because they are all made of sturdy, close woven 2 1/2 pound per square yard Underwriters grade Asbestos cloth.

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## Management

From page 19

tion of records. You have heard of the safety engineer who brings in an employee with a broken leg in a wheel chair and has him counting a box of bolts that never needed to be counted, just so the accident won't show on the record.

Such men can do more than any others to undermine the faith of the working force in the management. On the other hand, honest and painstaking efforts to improve the safety of working conditions win effective good-will. We at Davison feel that the excellent relationships we have enjoyed with employees are traceable more than to any other single factor to our interest in their health and safety.

This good will finds expansive expression in our joint management-labor councils. "Management" in this sense, not forgetting our need for definitions, means line management rather than top management. These joint committees consider all matters of mutual interest in the operation of the works, and a very substantial part of the recommendations brought up by the labor members have to do with safe working conditions. They are a real help to us and we strive to be helpful in return. With such mutually helpful sentiments real trouble tends to be warded off.

Our backing up of our safety men extends to granting them veto power over projects that are the responsibilities of other departments—even of top management itself. When there is planning of new plants, new processes, new methods, new machinery, new structures and alterations and additions to existing structures there is close scrutiny of them from the safety point of view. Detection of health or accident hazard will send the plans back to the initiating department for further study and work.

By such means and many others, the Davison safety record has been accumulated. In 1950 we won 35 safety awards from four important organizations. Among them, granted to the corporation as a whole, including its Phos-

phate Rock Mining Division in Florida, was the National Safety Council's "Distinguished Service to Safety Award."

Naturally we are proud of this accomplishment. We do not regard it primarily or mainly as the work of top management. We do feel that we have helped to inspire the program and keep it going full steam. The best safety engineers in the world are helpless without the backing of what is often called "the brass" but which in safety matters may be just "the lead." It is up to us to see that the safety practices which the experts recommend are followed right down the line of authority.

I saw recently figures to indicate that about two-thirds of industrial accidents take place in plants employing less than 100 persons. It cannot be entirely and probably is not mainly due to lack of top management interest. The smaller the plant, the more top management is concerned with the details of operation. It is probably due to the lack of properly and expertly staffed safety programs, because the smaller plants feel they cannot afford to hire specialists. It seems to me that in the case of the smaller plants, top management should see that as a part-time obligation one of the operating men should acquire the necessary techniques in industrial safety, and then to give him the means and the backing to do the job.

Industrial safety, to borrow a phrase, is everybody's business, which is why I refer to the records of the smaller plants. Any circumstances that bear on the public's opinion of the health and safety of industrial operations are the concern of all, because separating the sheep from the goats is something we cannot always rely upon the public to do.

The ultimate test of whether a safety program is working is not entirely in the statistics. It is to be found in the attitude of everyone in a company, from the president down. I am reminded of an incident at the ceremony at which the Council's "Distinguished Service to Safety Award" was presented—and I might say parenthetically that parties and ceremonies to celebrate safety awards

and safety records are among the means by which we show the interest of top management in such accomplishments.

At that ceremony a photographer was perched on a rather high ladder, taking pictures. A man had been assigned to the ladder to make sure it was held firm and level. A guest observed jokingly to the guard—"It would make a good story if that camera man fell and broke a leg while taking pictures of a safety meeting." Our man was not amused. He said unsmilingly, "If that happened, I would lose my job."

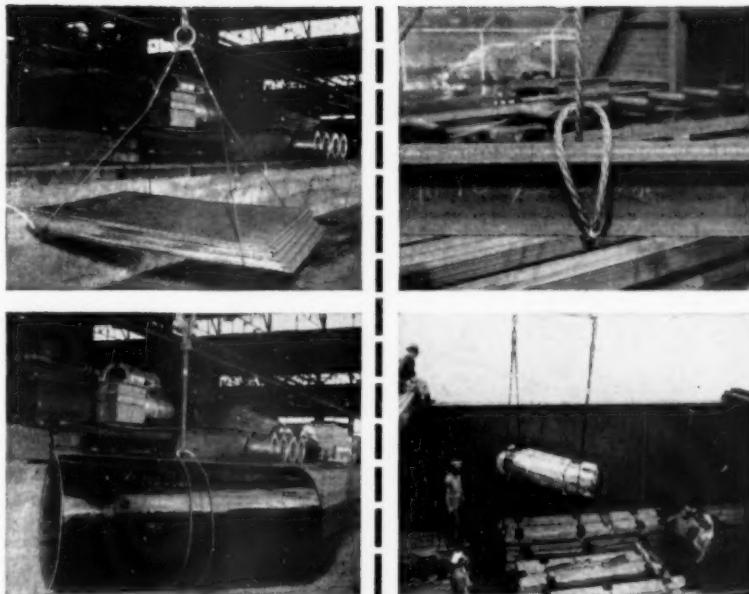
Now I doubt if he would have been discharged if he had not been at fault in the accident that hypothetically might have happened. But if he *had* been careless, he would have been severely disciplined, and in this we would have had the complete support of the representatives of the working force. The men and women in the plant know that unsafe workers are a menace to everyone's safety.

But the real point of the story is that the down-to-earth seriousness of the safety program had registered firmly in that man's consciousness—and we believe not less in that of the overwhelming majority of our people, whether of rank and file or higher status.

Forty years ago, a group of forward looking men met in Milwaukee to talk about safe practices in industry. This must have created a terrific stir in the industrial activities of the nation. However, this year the "National Safety Council" is celebrating its fortieth anniversary. It survived the test of time and is the backbone of this great social movement.

Top management supports this national cooperative movement. Here is where you men can get advice concerning your problems. It is more than a statistical center. It has analyzed the facts carefully and the answers are there.

I have kept distinctly away from the formulation of any detailed program. Each safety program must be correlated and specifically tailored to the types of operations. This is the duty of your director. The organization and the committee assignments are details of the plant managers and supervisors.



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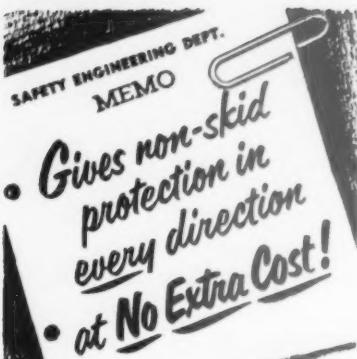
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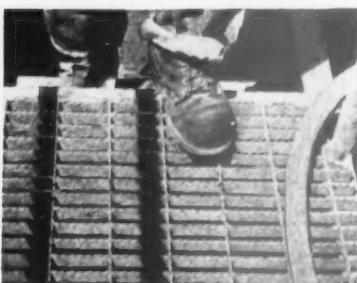
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They will all follow when top management is alert and positive on receiving abstracted reports *on time*.

Do not become discouraged when you find it difficult to sell your program to old timers. Patience is a great virtue. By carefully planning each step of your program, they will gradually see you are not only sincere but in earnest. They will grasp the idea that the constant vigil of maintaining the physical safety of the equipment, and the human safety are also a responsibility they must accept if they expect to win promotions.

You safety men have a great responsibility not only to your employers and to the employees, but to the community in which you live. Top management is offering you and providing you with tools to make yourselves effective in all of these spheres of influence. If you sincerely use and practice them, you will be rewarded both materially and spiritually.

Top management must be as serious in safety as in every other complicated phase of its business.

To make safety everyone's business is the function of management, whether at the top or along the line.

#### Home Folks Help

—From page 76

Mines-Approved protective equipment to cope with the hazards involved in plant operations.

A central safety equipment storeroom, with full-time attendants, is well stocked with all types of apparatus and appliances for safeguarding workmen. Here, such equipment as respirators and goggles are routinely cleaned, sterilized and repaired. Keeping equipment in good condition is one way to win the cooperation of employees for willingly using the safeguards.

Every job in the mill has been studied by management, supervision and employees for inherent hazards. Safe operating techniques are stressed continuously. Appropriate protective appliances are provided, as needed.

An emergency cabinet in the

mill safety headquarters contains such equipment as breathing apparatus which can be worn safely for production or emergencies in atmosphere contaminated by poisonous gases or deficient in oxygen. Instruments to detect concentrations of explosive gases or carbon monoxide are kept ready for use. A new type of apparatus, the Pneolator, to administer artificial respiration automatically in cases of suffocation, gas poisoning, electric shock and other accidents, is included in the equipment.

Because of its geographic location in a valley, the mill continuously is exposed to the hazard of chlorine gas. Huge volumes of this gas are generated and stored in the plant. Instead of hiding the hazard, Luke's safety department constantly reminds employees about it. But, the department also emphasizes the precautionary measures taken to combat it. Cabinet storage of small pocket-type respirators for emergency use of employees in buildings near all sources of chlorine is one example.

First aid promotion among employees and follow-up work is handled by the plant's medical staff, headed by Dr. Robert Bess. The company operates a fully-equipped medical center with full-time nurses to provide treatment for employees. There is apparatus to determine amount of carbon monoxide in the blood stream. Also, X-Ray is used extensively as part of the pre-employment examination and during employment. The preventive program includes cold vaccine for all employees and emergency treatment of minor ailments.

"Protection of manpower comes first," says Mr. Long. "The economic considerations follow."

"Our home safety committee is helping prevent home and community accidents that can keep employees off the job just as much as if they were injured while at work."

Perhaps the best example of "safety enthusiasm" is the fact that it took a full week recently to hold the turkey dinner given annually by the mill manager for all employees of departments which completed a full year without a lost-time accident.

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ZORBALL will stop slipping, skidding—prevent accidents on steps, walks, loading docks, ramps, etc. You can use it, also, to stop skidding of autos, trucks, buses, material handling vehicles . . . in plants, drives, parking lots, etc.

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ZORBALL absorbs oils, greases, paints, chemicals.

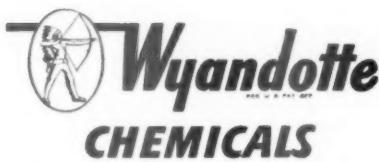
## For OILY greasy floors!

Wyandotte ZORBALL is a *different* and *better* floor absorbent. It won't **BREAK DOWN**, mud, dust or cake.

And, equally important, it *continues* to be skid-proof even after absorbing saturation quantities of oils, greases, paints, chemicals or water. In fact, after drying out, it can even be used again.

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The new Sani-Dri is available in two models — No. 8-SWA Hand dryer for washrooms; and No. 8-SWH Hair Dryer for Shower rooms, pools, etc. Both models are easily mounted to the wall and carry the Underwriter's Seal of Approval. Investigate this new faster-drying Sani-Dri today!

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### Gas Masks

—From page 21

came effective when the wearer disconnected the hose from his belt to "escape." The canister was the filter type and gave protection against everything except oxygen-deficient atmospheres.

This same idea is now used for "Maintenance Mask Equipment" in which air is supplied through a hose to compressed air mask equipment, either the continuous flow or the demand type, with a canister attached to be used only in cases of the shut off of the air supply, kinking of the air hose, or other needs to escape from the area due to the lack of air supply. In this case the "canister" is a small bottle of compressed air or oxygen which gives full respiratory protection for a short duration to the escapee.

Another illustration of the development of equipment being stymied by past practice and aided by new developing needs has shown up in the use of mask equipment for certain hazardous welding operations. As is well known, the window of the ordinary welding helmet is 2 x 4 1/4 inches, placed directly in front of the normal line of sight. Where real toxic hazards existed which could not be eliminated by ventilation, the first endeavor was to place a respirator covering the nose and mouth only, underneath the welding hood. This respirator, however, protruded so far that it moved the lower part of the helmet forward and raised the "window" higher than normal, so that in confined quarters, the welder could not weld "low down" due to the narrowness of the welding lens.

The next development was an actual facepiece with a standard welding lens mounted in it so that the man could move his head around. This increased the potential use of the equipment because there was a greater possibility of looking downward than with the respirator and standard welding hood combination.

In view, however, of the fact that this type of welding was done in cramped quarters, a wider range of vision seemed necessary — with the result that vision is

not now limited to a 2 x 4 1/4-inch welding lens. That area has been increased materially either in single or double lenses, effecting a very material increase in acceptance of this type of equipment.

Incidentally, increasing the vision area for welding gas masks may well be the forerunner of increased vision area for all types of welding hoods.

Another development born of necessity is a mask so arranged that a self-powered telephone microphone picks up the speech of the wearer of the mask equipment and transmits it through any practical length of cable to a corresponding receiver. Communication may be maintained with the wearer of mask equipment under practically all conditions. The equipment may be used equally well with canister mask equipment, air supplied equipment, or self-contained breathing apparatus.

The chemical industry is always trying to develop something which is completely insoluble and then trying to find a solvent for that material. In this race, certain solvents have been developed which are exceedingly hard on mask equipment worn to protect against the fumes from them. The result has been that in a few rather extreme cases not only the facepieces were attacked, but also the exhalation valves of all designs have been distorted so that they become unreliable with a tendency to expose the wearer to fumes coming in through the exhalation valve. This is not a frequent occurrence, but when it does happen, it can be serious.

A somewhat similar situation obtains in severely cold weather at temperatures of around -30° to -40° F. and lower. Exhaled breath contains a large amount of moisture and this freezes on and around exhalation valves, causing them, ultimately, to either freeze closed or open — with the resulting exposure to the man either by his yanking his mask off or breathing the gases through the open valve.

It was found by some operators in both situations that a hood worn over the entire mask equipment tended to reduce the hazard in each case. But the hood was cumbersome, therefore the demand for a more simple protec-

tion has created attachments which provide a "warming chamber" for the gas mask exhalation valve, using the exhaled breath to provide the warmth in the low temperature condition and to provide an inert atmosphere surrounding the exhalation valve in the other case.

The inert atmosphere is actually exhaled air (and, consequently, free of the solvent atmosphere), so that in each case, the portion of the mask most readily affected by these unusual conditions is made, probably, the safest portion of the mask by this accessory equipment.

For the benefit of those who are not familiar with the general types of equipment, it might be well to briefly outline their general features, together with the purposes for which they have been designed and their limitations.

In the first place, there are three general types of respiratory protection. Only one of these will be discussed, but many of the features will apply to all three types. These are:

1. Respirators (which cover the nose and mouth only),
2. Masks (which cover the full face and provide eye protection as well as respiratory protection),
3. Hoods (which cover the head and usually provide protection for the neck and come down over the shoulders, with a more or less unrestricted vision area through a window.)

Mask equipment gives the tightest fit of the three types and is usually selected to protect against the most critical and highly hazardous situations.

Mask equipment may be provided with a filter which is either or both mechanical and chemical to "screen out" dusts, adsorb or absorb gases or vapors. These canisters may have filters which are very low in resistance and very large in area so that, in consequence, they may have what may appear an unlimited period of protection against visible dusts and smokes—and with some filters, even protection against the invisible particles down to 1/10 of a micron in size. While this protection normally is in the order of 98 per cent in the lower particle sizes, it may be as high as 99.99 per cent efficient with special filters.

—Next page

**NO!**



Here, conventional U-bolt clips are properly applied but rope is distorted and subject to life-shortening strains under load.

**NO!**

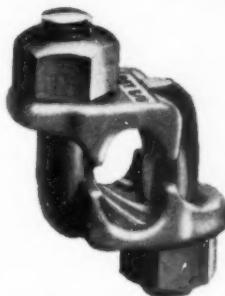


Inexperienced workmen can easily put conventional U-bolt clips on incorrectly with saddles not on load-line. Result: Weakened rope — risk of accidents.

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Both halves of the Laughlin Safety "Fist Grip" clip are identical. There is no wrong way. The most careless workman can't put 'em on wrong (unless he forgets to tighten the nuts). And they're not only safer and practically fool-proof, but they're a darn sight easier to use.

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The chemical in the canisters may either act like a sponge saturated with water (in other words, the highly porous chemicals are filled up) or the vast surface area of these chemicals may be coated with the gas or fumes and retained there, thus freeing the atmosphere from those unwanted gases or fumes. The chemicals may also carry on a chemical reaction, adsorption, which usually is accompanied by some chemical change of the adsorber, as well as the gas involved.

There is also another method by which these filters clear the atmosphere and that is "catalytic action" whereby the chemical in the canister (the catalyst) combines chemicals in the atmosphere to form another chemical which must be harmless. To illustrate: Hopcalite, used in certain canisters (All-Service, All-Purpose, Universal, Fire Fighters', etc.), combines oxygen and carbon monoxide, forming carbon dioxide and heat.

Canisters are made to protect against single gases, combinations of gases, or practically the whole gamut of gases, together with dusts of all types (including toxic dusts) and smokes. In deciding which of these canisters to use, it is well to discuss with the supplier of masks the use conditions, to be assured of protection against not only the single gas, but also others that may be formed due to accidents inherent in the use of materials in the immediate surroundings.

Heat is an expected characteristic of a properly working canister because all of the activities within the canister produce heat, with the possible exception of filtering. This heat is in a direct ratio with the amount of gases being handled by the canister and is, in general, a sign of their proper functioning.

However, conditions may arise where so little heat is developed that it would be difficult to ascertain whether the canister was heating or not. The heat of reaction between HCN and soda lime is so small that the temperature rise of the effluent from a canister operating on 0.5 per cent HCN is in the order of 3 to 10 degrees F.

Canisters are capable of only taking the atmosphere as it exists,

removing certain toxic or hazardous vapors or gases from that atmosphere, and permitting the remainder to be used by the wearer of the mask for normal breathing.

If the atmosphere happens to be contaminated to a very high degree (percentages above 3 per cent) by some particular harmful gas, the life of the canister may be very short or even, in severe cases, not capable of handling all the gases that are present in the atmosphere, with a certain amount going through to the individual. It's like a dam handling the normal water flow of a stream, but unable to handle the flood stages.

In these extreme cases, there is usually some irritant in the gas which either will drive the man out due to burning sensation on the skin before the limits of the canister have been reached, thus giving him complete respiratory protection while he can remain in the atmosphere, or the heat becomes so great that it heats up the air that the man must breathe, to such an extent that he is unable to stay in the atmosphere.

In cases of fires where the combustion has been confined to such an extent as to have reduced the oxygen content to below the safe breathing conditions (usually considered 16 per cent oxygen), the wearer of mask equipment is in exactly the situation that the flame is: not enough oxygen for its support. He can go out, just as the flame does. However, wherever a flame does exist, a man may use canister mask equipment.

There are rare cases in which the flooding of the area with gas, either intentionally or through a rupture of lines, may bring the concentrations of gases up to a point where the oxygen content has been diluted severely and canister mask equipment, of course, could not be used for two reasons: (1) high concentration of gases and (2) low concentration of oxygen.

Supplied-air mask equipment is usually of two general types, dependent upon the way in which air is supplied. Again, the information applying to the full face-piece gas masks, with certain limitations, also applies to respirators and hoods. Air may be supplied at low pressure, either at



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mospheric pressure or a very little above atmospheric as supplied by hand-operated blowers, or from high pressure, similar to that coming from a plant compressed air system or cylinders of compressed air by means of pressure reducing valve. In the latter case, the equipment may be arranged to have a continuous flow of air to the wearer of the mask equipment or an intermittent flow through the provision of a regulating device which supplies air from the system only when the wearer inhales.

The low-pressure equipment is designed and approved by the U. S. Bureau of Mines for use in irrespirable atmospheres from which the person cannot escape without the use of mask equipment. This, then, requires that in case the blower should be shut down, that the man would be able to draw enough air through the hose to support activity while retiring from the area. It happens also that this type of equipment is used with comparatively short length of hose (25, 50 and 75 feet) without the use of a blower at all, because the resistance of the 1 inch I.D. hose is sufficiently small so that a man can drag air from an outside fresh air source to himself inside of a tank, or other irrespirable atmosphere, without outside assistance.

The compressed air supplied equipment is not approved for use in irrespirable atmosphere due to the fact that in case the compressed air were shut off due to kinking of the hose, cutting of the hose, or reduction of pressure, the man would not be able to breathe air through the small hose in sufficient quantities to support life. He would be panicked into removing his mask and be exposed to the irrespirable atmosphere.

This is the type of equipment, mentioned earlier, to which is attached a supply bottle or canister to reduce the hazard of this situation. But, for several reasons, this equipment does not meet the requirements of existing schedules so that approvals are only available for use in so-called "non-hazardous" locations from which a person may escape without the necessity for the complete protection provided by the low-pressure

large-hose equipment.

There is a real advantage to the use of supplied-air equipment in that a person can work all day long with it, the breathing is very much easier even than without mask equipment on at all, due to the fact that there is a slight pressure within the facepiece (in the continual flow type), and at worst, almost unnoticeable resistances to the inhalation of atmospheres under any conditions. The only real disadvantage to this equipment is that a person has to watch his hose, and kinking or cutting are conditions which should be given consideration.

Self-contained breathing apparatus, using a full facepiece gas mask, is of three general types: (1) the self-generating type, (2) the exhaust type, and (3) the "make-up" or closed system type.

The self-generating equipment was developed first in Germany. It is basically a container which produces, through chemical action, sufficient oxygen to maintain the wearer of the mask equipment over a fairly long period of time. This equipment may be used in any type of atmosphere which is not hazardous from a standpoint of skin penetration or burning or other external difficulties.

The exhaust type of equipment is maintained by a tank of compressed air or oxygen carried by the wearer and the exhaled breath from the mask equipment is expelled into the surrounding atmosphere.

The "make-up" or "closed system" equipment was first developed on the Continent and has gone through a series of developments. It is basically a container of pure oxygen under pressure, which is admitted into the closed system, automatically, as required, and the carbon dioxide breathed out by the individual is adsorbed by special chemicals within the closed system. The make up of oxygen comes from the compressed cylinder and the "closed system" very definitely is an exact definition of this type of equipment.

Self-contained apparatus, although the most complicated of mask equipment, has a very definite place in the safety picture.

The only limitations to its use are the time that the supply of oxygen is available and the weight of the equipment—which, of course, has been materially reduced in the self-generating type.

The U. S. Bureau of Mines gives approval to each of these three types: the filter type, the air supplied type and the self-contained breathing apparatus, under appropriate specifications for each and for full appreciation of the details of testing to assure "better mask equipment for the public," one should carefully read the U. S. Bureau of Mines' Schedules 13, 14 and 19, covering the equipment which has been discussed.

As indicated previously, there are certain limitations inherent in these general types of equipment which should be given consideration in their use. Among these, the first and, probably, the most important is the psychological one—and that is fear of the equipment itself—or its converse, overconfidence in its protection. Either extreme can lead to undesirable results as the inherent capabilities of each piece of apparatus and the inherent hazards of the gases or conditions under which they are used, make the problem of their proper selection a complicated one, entirely aside from the matter of economics or cost of the equipment itself.

Training is the key to the inherent limitations of this equipment. The training program should include plenty of practice in putting the equipment on and taking it off, and maintaining it. This includes sterilization, checking for leaks, replacement of worn or used parts, and other inspections depending upon the type of equipment.

This training should also include a very careful consideration of the particular plant problems and the types of equipment which should be used for protection against them, together with the time limits, gas concentration limits, the amount of effort or work required while using the equipment (as the volume of air needed by the wearer is a material factor in the expected life of canisters and self-contained breathing apparatus), the matter of weight and

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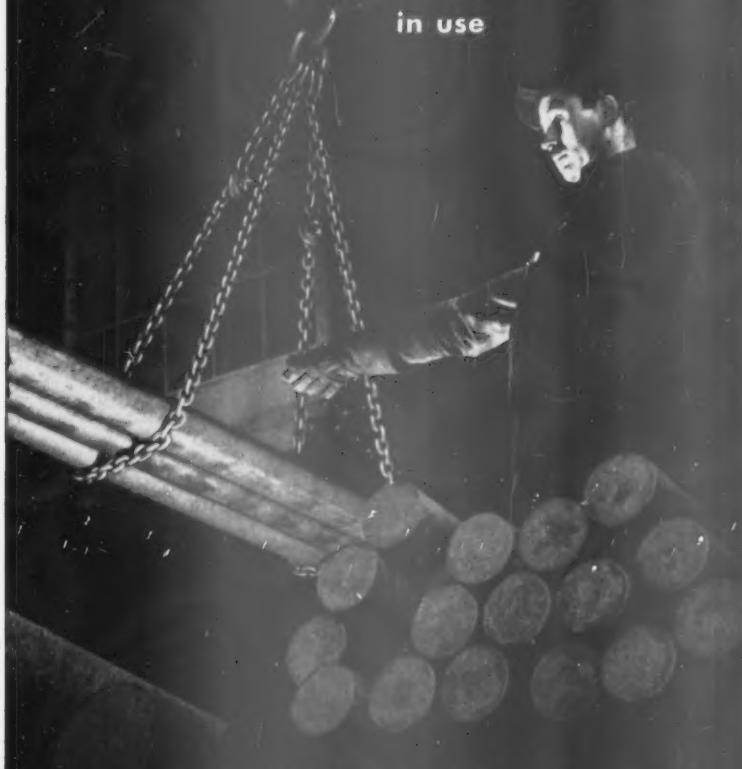
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Chin style mask, canister type. (Davis Emergency Equipment Co.)

its relationship to the proper handling of the job, and the factors of acceptance by the workmen.

A full knowledge of hazards many times will create acceptance of equipment which otherwise would not be worn. Knowledge also tends to overcome fear of equipment and to build up a confidence which is quite different from over-confidence. Finally, training should also give full consideration to the economics of the picture because employees are quite prone to question the policy of buying a pop-gun for hunting grizzly bears or the other extreme of buying a battleship if you're going fishing in a millpond.

Some simple things to keep in mind in connection with full face-piece gas mask equipment, either the filter type, air-supplied type or self-contained breathing apparatus. Keep it clean. In so doing, a certain amount of inspection work is required and this should also include a kneading of the rubber, like dough in a bakery. This will actually extend the life of the rubber and, at the same time, disclose cracks or breaks which otherwise might not appear.

The replacement of canisters, the filling of tanks, the checking of supplied air pressure, and a normal routine should all be set up on a schedule basis which could well be once a month and which, in some companies, have even been found to be practical once every day, depending, of

course, on the amount of usage which the equipment is given.

The various manufacturers of mask equipment in the United States have individuals who are very competent to advise you regarding the various types of equipment available and a complete and full disclosure of your hazards will assist them in giving you the best advice in your selection and care of this very vital equipment.

#### Industrial Health

—From page 66

some degree in the lenses. This is apparently due to neutron radiation and the peak of development of new cataracts seems now to have passed.

There have been considerable dental changes in children with tooth buds which had not erupted at the time of exposure. There has been both delay in eruption of such teeth and increase in caries as well as enamel abnormalities.

There is no sign of any peculiarity of general growth or development rate or of any permanent change in the composition of the circulating blood in the exposed group.

Sociological and physiological studies are being carried on but the problem is very large and complex and there are not even preliminary results to be reported as yet.

There is an active genetic program for the study of the rate of occurrence of mutations in the exposed population. Experimental studies have shown that mutation rates of plants and animals are increased by exposure to both gamma radiation and neutron radiation. The increase in rate varies very widely according to the particular form of life being studied. Because of the wide variations it is not possible to infer human rates from the animal experiments. The rates in the exposed population are now being correlated with radiation doses from the distances of the individuals from the center of explosion of the bombs.

Approximately 50,000 babies have been carefully studied for signs of mutational changes up to the present time. It is estimated

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that approximately twice this number must be studied before the trends now shown can be considered as statistically significant to a sufficiently high degree of probability. In the group studied up to the present, mutational changes have appeared in approximately 1.18 per cent of the offspring of nonradiated parents while 1.4 per cent of the offspring of parents who showed evidences of radiation injury show mutational changes. This is an increase of almost 20 per cent in the mutation rate.

The Atomic Bomb Casualty Commission is continuing its studies and following the end of the occupation it has become formally a cooperative venture between the National Academy of Sciences of this country and the Japan Science Council. It will continue to be financed wholly by the Atomic Energy Commission.

### Skin Ailments of Mental Origin

*Psychogenic Aspects of Diseases of the Skin of Industrial Workers, with Discussion of "Red Hands" of Occupational Origin*, by Joseph V. Klauder, Industrial Medicine and Surgery, 21:413-419 (September 1952).

THERE IS LITTLE DISCUSSION in the literature of the role of suggestion in producing an "epidemic" of "eruptions" among industrial employees. Such occurrences arise from an employee who insists that his or her eruption is occupational. Through gossip and fear of "contracting" a skin disease other workers develop a skin complaint with severe itching.

Examples are presented of a telephone operator with a vesicular skin disease on her hand which she regarded as brass poisoning and insisted so strongly that six of her co-workers on the switchboard were referred to the physician for examination with complaints of itching of the forearms and face. Other employees showed itching from contact with textile materials. A bland ointment prescribed in these cases was used as a protective ointment or barrier cream and produced complete cures.

Another example is offered of a typist who worked before a table on which nylon was packed and unpacked throughout the day and

who complained of sensitivity to nylon. This individual, at the same time, was regularly wearing nylon stockings and had never reacted to them.

Mental disturbances over skin diseases are intensified by the fact that many persons consider diseases of the skin necessarily loathsome and contagious. While this attitude is an anachronism of the time when diseases of the skin were identified with leprosy or venereal diseases, it is still common and it is not uncommon to have fellow employees stigmatize an individual with a recurring skin disease. This condition also prevents resumption of many kinds of work until the dermatitis has completely disappeared. This is especially true in connection with any food handling jobs.

Several cases illustrate the development of red hands from psychic causes. A painter was spraying gray paint and washed his hands with a new paint thinner (methyl ethyl ketone) before going to lunch. En route back to the shop after lunch he observed that his hands had become very red. He thought he had been poisoned by the new thinner and was extremely apprehensive about it. A month later both palms and both surfaces of all of the fingers except the back of the thumbs were vividly red. The redness was sharply marginated on the sides and base of the palms and the sides of the thumb. The color could not be removed by solvents or by sodium hypochlorite bleach. The man complained of inability to hold tools and of pains in his hands.

After psychiatric treatment the redness disappeared in about ten weeks. The psychiatrists classified the situation as an anxiety neurosis and not related to malingering.

A purplish-red discoloration of the fingers and palms accompanied by severe tingling, burning and soreness of the hands was observed in a woman employed cleaning vestibules of railroad coaches with a 5.3 per cent solution of oxalic acid. This is probably the result of the oxalic acid combining with calcium to disturb the calcium to potassium ratio of the tissues.



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# COMING EVENTS



## Jan. 29-30, Milwaukee, Wis.

Statewide Safety Conference (Hotel Schroeder).

## Mar. 1-3, Atlanta, Ga.

Southern Safety Conference and Exposition (Atlanta Biltmore Hotel). W. L. Groth, executive director, P.O. Box 8927, Richmond 25, Va.

## Mar. 3-4, Philadelphia, Pa.

Nineteenth Annual Philadelphia Regional Safety and Fire Conference and Exhibit. (Bellevue-Stratford Hotel). Walter W. Matthews, managing director, Philadelphia Chamber of Commerce, Safety Council, Architects Bldg., 17th and Sansom Streets, Philadelphia 3, Pa.

## Mar. 24-27, New York

Twenty-Third Annual Greater New York Safety Convention and Exposition (Hotel Statler). Paul F. Stricker, executive vice-president, Greater New York Safety Council, 60 East 42nd St., New York 17.

## Mar. 24, Madison, Wis.

Canners' Safety Institute (Hotel Loraine).

## Mar. 30-31, Boston, Mass.

Thirty-second Annual Massachusetts Safety Conference and Exposition (Hotel Statler). Edgar F. Copell, president-director, Massachusetts Safety Council, 31 State St., Boston 9, Mass.

## Mar. 30-31, Houston, Tex.

Texas Safety Association, 14th Annual Conference (Rice Hotel). J. O. Musick, general manager, 830 Littlefield Bldg., Austin, Tex.

## Apr. 9-11, Kansas City, Mo.

Central States Safety Congress (Hotel President). George M. Burns, director, Kansas City Safety Council, 419 Dwight Bldg., Kansas City 6, Mo.

## Apr. 14-15, Indianapolis, Ind.

Central Indiana Safety Conference (Claypool Hotel). Jack Gunnell, Indianapolis Chamber of Commerce, 320 N. Meridian St., Indianapolis 11, Ind.

## Apr. 21-23, Grand Rapids, Mich.

Michigan Safety Conference and Exhibit. (Civic Auditorium). Elon J. Schantz, executive secretary, c/o Consumers Power Co., 129 Pearl St. N. W., Grand Rapids 2, Mich.

## Apr. 21-23, Niagara Falls, N. Y.

Thirteenth Western New York Safety Conference (Hotel Niagara). E. C. Hohlstein, executive secretary, c/o Blaw-Knox Equipment Division, Blaw-Knox Co., 1543 Fillmore Ave., Buffalo 1, N.Y.

## Apr. 22-24, Charleston, W. Va.

West Virginia Safety Council, Inc. Annual Conference and Exhibit. Mrs. W. C. Easley, acting managing director, 316 Masonic Bldg., Charleston, W. Va.

## Apr. 23, Bridgeport, Conn.

Eighth Annual Connecticut Industrial Safety Conference. (Hotel Stratfield). H. R. Erickson, c/o Chase Brass & Copper Co., Waterbury, Conn.

## Apr. 27-29, Phoenix, Ariz.

Western Safety Conference, Inc., 15th Annual Conference and Exhibit. H. E. Hodgson, secretary, 310 Luhrs Bldg., Phoenix, Ariz.

## Apr. 28-30, Pittsburgh

Western Pennsylvania Safety Council, 28th Annual Safety Engineering Conference and Exhibit. Harry H. Brainerd, executive secretary, 605 Park Bldg., Pittsburgh 22, Pa.

## Apr. 29, La Crosse, Wis.

Lower Mississippi Valley Safety Conference.

## May 7, Watertown, Wis.

Rock River Valley Safety Conference.

## May 7-9, Roanoke, Va.

Nineteenth Annual Virginia State-Wide Safety Conference (Hotel Roanoke). William M. Myers, managing

director, Richmond Safety Council, 49 Allison Bldg., Richmond 19, Va.

## May 11-13, Syracuse, N. Y.

Central New York Safety Conference. Walter L. Fox, manager, Safety Division, Chamber of Commerce, Syracuse, N. Y.

## May 13-15, Winston-Salem, N. C.

Twenty-third Annual North Carolina Statewide Industrial Safety Conference. (Robert E. Lee Hotel). H. S. Baucom, safety director, North Carolina Industrial Commission, Raleigh, N. C.

## May 14, Green Bay, Wis.

Fox River and Lake Shore Safety Conference.

## May 21, Waukesha, Wis.

South East and Lake Shore Safety Conference.

## June 11, Superior, Wis.

Upper Mississippi Valley and Lake Superior Safety Conference.

## June 18, Rhinelander, Wis.

Wisconsin River Valley Safety Conference.

## Oct. 19-23, Chicago

Forty-first National Safety Congress and Exposition. (Conrad Hilton Hotel). R. L. Forney, general secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

## Nov. 17-18, Cincinnati, O.

Third Annual Greater Cincinnati Safety Conference. (Sheraton-Gibson Hotel). Kenneth R. Miller, executive director, Greater Cincinnati Safety Council, 1203 Federal Reserve Bank Building, Cincinnati 2, Ohio.

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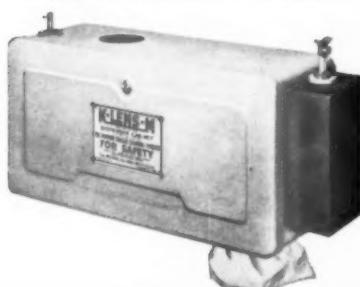


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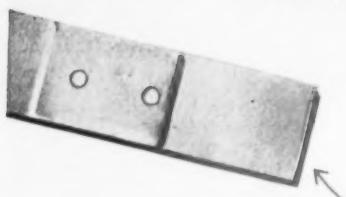
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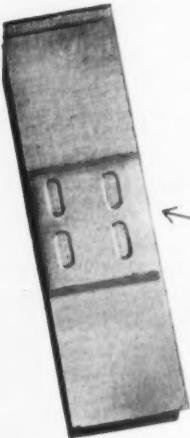


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## Safety Library

—From page 56

### Air Pollution

*How to Fight Pollution.* By Robert A. Dilley, Factory Management and Maintenance. November 1952, p. 121.

### Commercial Vehicles

*Cut Spiraling Costs with a Clean Shop—for Safety, Savings and Morale.* Fleet Owner, p. 66.

*Cut Spiraling Costs with Good Drivers.* By Amos Neyhart. Fleet Owner, Nov. 1952, p. 55.

*"Secret Weapon" Reduces Auto Accidents.* By Clayton H. Allen. Electric Light and Power, Nov. 1952, p. 105.

### Fire Protection

*Automatic Flash Point Instrument.* By R. H. Jacobs. National Fire Protection Association Quarterly, October 1952, p. 124.

*Common Causes of Electrical Fires.* By Paul Lindholm. Factory Management and Maintenance, Nov. 1952, p. 132.

*Fire—A Continuing Menace to Industry.* By Gilbert E. Strecher. The Plant, Oct. 1952, p. 42.

*Spray Nozzle Studies.* By Warren Y. Kimback. National Fire Protection Quarterly, Oct. 1952, p. 149.

### Foundries

*Simple Steps Lead to Successful Foundry Safety Program.* By Wm. N. Davis, American Foundryman. October 1952, p. 42.

### Health

*Acute Carbon Monoxide Poisoning.* By J. Wister Meigs and others. AMA Archives of Industrial Hygiene and Occupational Medicine. October 1952, p. 344.

*Industrial Medical Aspects of Chest Diseases of Occupational Origin.* By Dr. Frank Princi. The Journal of the American Medical Association. Nov. 22, 1952, p. 1173.

*Industrial Medicine Goes to Sea.* By Dr. J. G. Hewitt, Industrial Medicine and Surgery. Nov. 1952, p. 535.

*Medical Aspects of Accident Prevention.* By Dr. Harold Brandaleone. Mass Transportation, Nov. 1952, p. 36.

*Pneumoconiosis Due to Diatomaceous Earth.* Clinical and



size, I am a hobbyist, playing my pet idea when it isn't what we need at all."

I got lots of sympathy from Harry Dexter, and lots of arguments to use in rebuttal but I'd thought of all those arguments myself.

We gradually calmed down and started trying to talk tactics sensibly. "There's one tough nut to crack," Harry said. "Lewis has set up an analogy between the warehouse situation and the eye program. On the warehouse, he's

right. Most of the physical improvements necessary have been made. The educational effort ought to carry over with an occasional nudge, and we can shift emphasis as he suggests. But eyes aren't the same. That's what we've got to prove. But what is the proof that makes us so sure?"

I took it from there, with an occasional suggestion from Harry. In general, it ran like this:

1. Lewis's argument ignored the fact that a substantial cutback of safety effort had taken place.

That we had spent, at the peak, 50 per cent of our safety department time on selling, planning, installing, and indoctrinating in connection with the first eye survey. This concentrated drive lasted only three months, and we deliberately cutback to approximately our present level of activity at the end of that time.

2. That the present level of activity represented the minimum which could be expected to keep abreast of new employees, to handle periodic re-examinations, to keep foremen interested in enforcing eye protection use, to keep the employees convinced of the importance of using their eye protection, and in refitting and replacing goggles and shields in the normal course of events.

3. That the proof of the necessity of this regular follow-up work was that the graph of reduction in eye injury costs did not show any sudden, spectacular drop during the period of first concentration, but only started slowly down then, gaining momentum over an 18-month period, and only beginning to level off when we had already quartered the cost rate that previously held. As a matter of fact, there has never been a real leveling off, only a slowing down of the rate of improvement.

4. That to curtail the effort expended on the eye protection program would mean an almost certain and immediate increase in eye injuries.

I took essentially that case right to Lars, and he called in Lewis. I'll give Lewis credit. For all his master's degree in management engineering, or all his Fifth Avenue clothes and his Harvard accent, he didn't run from facts. He said,

"Your point 3 impresses me. I must admit that I and my staff overlooked the delayed reaction element in the start of the program. I can see that it raises a doubt, a legitimate doubt, as to my conclusion. Why don't we make a test and see whether your conclusion that a curtailment of effort means an increase in eye accidents?"

"Test, how?" I asked.

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Dept. D PHILADELPHIA 31, PA.

one group your standard treatment. Drop down the level of activity on the other group and see whether eye injuries increase."

"No!" I said, meaning it.

"Why? If you would do it in one situation, why not in the other?"

Sometimes, not often, but sometimes, I wish I could talk fluently about some of the things that are deeply important to me, but which aren't easy to state. But the best I could do was say:

"There are differences. In the off-the-job campaign I was dealing with something I didn't know anything about. I had a hunch, not a conviction. Also, I was not taking something away from anybody. I was adding something. Also, I was getting evidence which I hoped, and which in fact did make it possible to secure an appropriation which materially expanded and improved our over-all safety program. That kind of controlled experiment, I'll make.

"But you are asking me to cut out something which I am firmly convinced, not just following a hunch, will result in increased injuries. I don't feel like paying with a half dozen eyes for the sake of proving something I already know to be true."

Lewis looked me up and down, then said to me, "I like your attitude. It's wholesome. You would be a bad safety man if you didn't hold to it."

And then he turned to Lars and said, "There is one great advantage in bigness in an organization. It permits management to isolate itself from sentimental pressures that are inevitable when top management is in close contact with individuals. I said your safety man rejected as he should. But it is not the way the president of the corporation should react. Your position is that of the general of an army who knows that men are expendable. He must send out a dozen fruitless patrols to batter their heads against strong enemy positions, in hopes that one of them will find a soft spot which can be exploited to the end that, over-all, men's lives will be saved.

"Your safety man is the platoon leader who thinks he knows that his detachment will be smashed in the patrol action. He, quite



## TORIT DUST COLLECTORS

Get Close to Their Work to Get Results!

Almost hidden by this thread grinding machine is a Torit No. 64 Dust Collector. Note the minimum of piping and how the dust nozzle nestles just below the work—out of the way yet close enough to capture every dust particle.

Torit Dust Collectors possess many advantages. Compact and self contained they fit in most anywhere, with a minimum of installation expense. Piping losses are reduced and, wired through machine starters, so are power demands. Their rugged construction insures long life and easy maintenance.

There are Torit Dust Collectors for every standard dust problem, and adaptations for unusual requirements can be quickly designed and fabricated. For complete information and the latest Torit Catalog write:

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MANUFACTURING COMPANY

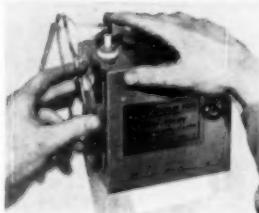
291 WALNUT STREET • ST. PAUL 2, MINN.

Over 20,000  
**TORIT DUST COLLECTORS**  
Now in Operation

## ALLEN SANI-SPRAY STATION

For Cleaning and Fog-proofing Glasses and Goggles

- ✓ Self-contained
- ✓ No air pressure
- ✓ No attachments
- ✓ Compact size
- ✓ One stop—one application
- ✓ Hang up ready to use



- ✓ Holds dispenser of Sani-Spray and 400 tissues plus receptacle for used tissues
- ✓ Lock and key for tamper-proof
- ✓ Heavy gauge steel with baked enamel finish

**ALLEN OPTICAL COMPANY**

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# Stop Athlete's Foot!

## ONOX SKIN TOUGHENING!



**Used by Over 70% of the Largest Industries in the United States**

No splash • No mess • No waste • Odorless

Easy to maintain • Nothing to get out of order  
Men like Onox • It relieves tired, aching feet

Modern research has upset the old theories about Athlete's Foot control. Skin specialists now say that the best chance of preventing Athlete's Foot is to improve the condition of the skin. That's what Onox does. Onox mineral salts toughen the skin and make it resistant to fungus growth. No fungus growth—no Athlete's Foot.

### 60 DAY TRIAL OFFER

We will ship prepaid your trial order for any amount of Onox and footmats. You pay nothing unless fully satisfied after 60 days' use.

**ONOX, INC.**  
DEPT. DI, 121 SECOND STREET  
SAN FRANCISCO 5, CALIFORNIA  
WAREHOUSES: BROOKLYN, CLEVELAND,  
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### Safety does not Cost

Safety saves. When Cal-Flor-Dry is sprinkled on oil and grease, on floors, stairs, docks, etc., it prevents slipping accidents.

Cal-Flor-Dry absorbs 120% of its own weight in oil and grease, even soluble oil and also other liquids.

Cal-Flor-Dry provides safety and good house-keeping with an over-all saving.

**ASK YOUR JOBBER SALESMAN,  
OR WRITE DIRECT.**

**The FLOR-DRY Company**



2318 Wycliff St.  
St. Paul 4, Minn.

properly, feels the action unwise. But the general knows it is wise, because of his broader view and his freedom from any sentimental attachment to individuals or a group. For the sake of saving eyes, not heartlessly destroying them, I recommend a policy that may well cost us eyes in the short run."

Lars looked at me questioningly.

I said, "No!" And I still meant it.

Decision-making like this is always hard for Lars. Down in the shop, when trouble broke in his days as super, he was quick, decisive, sure. But here, his bald head glowing in the golden lamp-light, his heavy face reflected in the polished glass on the mahogany desk, between a guy like me and a guy like Lewis, he wasn't quick or happy.

Finally, he lifted his chin off his hand and said to me, "How sure are you?"

"Sure enough," I said. "Sure enough so I don't want to be the executioner who tells the guys in Department X that I don't give a damn if they get steel in their eyes—that I hope they will, and quick, to prove my case and get us back to operating the way I know we should."

"That's sentiment, not proof," Lewis said.

"That's sentiment, backed by fifteen years of safety work in which I've seen good, bad and indifferent eye programs, and compared their results."

Lewis jabbed again, "But have you ever seen a good program relaxed, not dropped but eased off a little in the interest of concentration elsewhere? Do you really know that the losses will increase?"

All I could say was, "I don't know it, not in the sense in which you mean it. I can't prove it with case histories. But I know it as well and as surely as I know anything about the safety engineering business. I have acted, over the last five years, on the basis of many convictions which I held less strongly than I hold this one. If you haven't confidence in my judgment in this matter, you shouldn't have confidence in my judgment on any matter."

Lars looked thoroughly miserable and doubtful. Lewis looked at me a second, then at Lars for a full half minute, during which nothing was said. Then, just as Lars raised his head from his hand again, Lewis revealed to me the real secret of how to be a top-notch consulting expert drawing fat fees.

What he said was, "Mr. Larson, I withdraw my suggestion. I do this for two reasons. First, your safety man has proved himself a reasonable and conscientious man by admitting the validity of my comments on mis-emphasis in certain areas of his work, so we have accomplished something beneficial in his work—beneficial to the company, to the employees and to him. Second, on the point of disagreement, we are clearly faced with a decision on carrying out a policy that, though intellectually sound, would be flying in the face of the professional man in the field, would be voting 'no confidence' in his judgment, when, in fact, in all other areas, we know his judgment to be good. I think my proposal was sound. But I do not think it important enough or sure enough to produce constructive results to be willing to urge on you an action that would surely adversely affect the morale of an able staff officer of your organization."

I don't know how many of the long words Lars understood fully. But he understood enough to know that Lewis was letting him off the hook, was allowing a tough decision to go unmade. So Lars was happy, and I was happy, and I suspect that Lewis was happy, too, knowing that he had built up capital as a guy with a broad and tolerant viewpoint. That was worth more to him than winning the argument, and his gesture was made at a time in the discussion when it was far from sure that he would win in any case.

So we shook hands all around and went our ways rejoicing.

But someday I want to ask Lars how he was going to rule on the question, and when I get his answer, maybe I'll ask myself if I would have resigned if it had gone against me.

## Are You Fully Protecting the Feet of Your Employees?



### "SANKEY" IMPROVED FOOT GUARD equipped with Anti Skid TOE CLIP.

"SANKEY" FOOT GUARDS consist essentially of a metal shield to be worn over the shoe whenever the foot is in danger of being either crushed or cut. The metal shield is designed to furnish a maximum amount of protection to the entire front of the foot—not merely the toes alone, but also to the instep against hazards from falling, rolling or flying objects, or from accidental tool blows. Write for literature or a trial pair.

**ELLWOOD SAFETY APPLIANCE COMPANY**  
219 SIXTH STREET ELLWOOD CITY, PENNA.



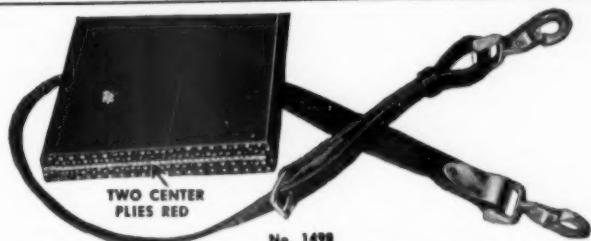
Combination Foot-Shin Guard



Foot Guard Equipped With Anti-Skid Full Sole



Fibre-Shin and Shin-Knee Guard



No. 1498

### NEW! BUHRKE NYLON SAFETY STRAP -ULTRA FLEXIBLE

Light weight, SAFE, uniform flexibility—even at  $-28^{\circ}$  F—strap remains soft and pliable; in 2 styles. No. 1458 with slide buckle, and No. 1498 (above) with tongue buckle. Made of NYLON FABRIC.  $1\frac{1}{2}$ " wide, 6 ply. Full cross section breaking strength over 3,000 lbs., buckle hole strength over 600 lbs. SAFE to use until RED PLY appears. Complete controlled fabrication of strap in our plant. Write.

**R. H. BUHRKE CO., 1403-11 W. Congress St., Chicago 7, Illinois**



***“Every dollar  
--double duty...”***

**HARVEY S. FIRESTONE, JR.**

Chairman, The Firestone Tire and Rubber Company

**“Every dollar invested in U.S. Defense Bonds does double duty. Through the Payroll Savings Plan we help in the building of national defense and, at the same time, provide for personal security in the years to come. The Firestone organization is proud that more than 29,000 of our employees are participating in the Payroll Savings Plan.”**

Do America's wage earners appreciate that double duty feature of Defense Bonds? Let's take a quick look at a few figures:

- 7,500,000 employed men and women are investing *one hundred and fifty million dollars per month* in Defense Bonds through the Payroll Savings Plan.
- The number of Payroll Savers is going up steadily.
- In the first six months of this year, sales of Series E \$25 and \$50 Bonds—the payroll savers' sizes—totaled 33,946,000 pieces—an increase of 22% over the corresponding period of 1951.
- Sales of E Bonds in January-June, 1952 totaled \$1,715 million—5% more than in the same period of 1951. (The Payroll Savings Plan is the backbone of E Bond sales.)
- Today Americans hold a cash value of more than \$49 billion in Savings Bonds. Their holdings of E Bonds

—the Series bought by Payroll Savers—are now \$35 billion—\$5 billion greater than at the end of the war.

What are you doing to help your employees build for national defense and personal security?

If you have a Payroll Savings Plan, and participation is less than 50%, conduct a person-to-person canvass of employees of your plants and offices. Make sure that a Payroll Application Blank is placed in the hands of every employee. He or she will do the rest. Participation in your Plan will jump to 60%, 70%—even higher, as it has in hundreds and hundreds of plants that have conducted similar canvasses.

If you do not have the Payroll Savings Plan, phone, wire or write to Savings Bond Division, U.S. Treasury Department, Suite 700, Washington Building, Washington, D. C. Your State Director will help you to install the Plan—or to conduct a person-to-person canvass.

*The U. S. Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and*

**NATIONAL SAFETY COUNCIL**



# Safety Arcade at State Fair



INSPIRED by the old penny arcade, the exhibit shown in the accompanying illustration was set up at the Wisconsin State Fair held in Milwaukee, during the week of August 18, by Employers Mutuals of Wausau.

Through a variety of displays and gadgets that spectators could work themselves, many lessons on home, industrial and traffic safety were illustrated.

There was a self-operating depth perception test and a brake reaction test so that people could judge their physical qualifications for driving.

As a reminder for eye protection, the old shell game was set up in a booth with a manikin attendant. The idea was to guess which shell had an artificial eye under it.

Peep shows were lined up on both sides of the booth, featuring "come-on" artwork and the invitation to look in and push the button. Upon doing so, the spectator saw a photo of an attractive miss and a safety jingle. Some of the peep shows were as follows:

*Beauty Contest:* Contestants lined up, with "Miss Safety First" before judge's stand.

When all the bare facts are revealed, And the judges' ideas are concealed, You can bet our fair lass,

"Safety First," wins first class... For she's tops, whether dressed or unpeeled!

*Whistle Bait:* A miss whose shapeliness is unfortunately concealed by industrial protective equipment such as a welder's helmet, gauntlet gloves, etc.

This peep-show may be a let-down, And instead of wolf-whistles, you'll frown.

But this lass takes no chances, She'll get the long glances

At night, when she wears a tight gown.

*The Peeler:* A strip-teaser, well into the later stages of her act.

This strip-tease is meant to amuse, But also to bring you the news

That accidents trip you

And heartlessly strip you.

It's more than your clothes that you'd lose!

*Saturday Night:* Girl in bath-tub; radio plugged in and playing on tub's edge.

Your mood is as light as a bubble, But we must interrupt, "on the double!"

Electricity, daughter,

Is fatal near water.

You're tuned to a station called TROUBLE!

*Love at 50:* Couple breezing along in car; his right arm around girl, driving with left.

You've seen the sign: "Danger, Soft Shoulder."

It warns all the younger and bolder, Who're restless and shifty,

And cuddle at fifty,

That they aren't going to get any older!

*Wolf Call:* Well-poised and well-turned girl, standing at intersection waiting for green light.

This lass looks to left and to right, And at stop signs she waits for the light.

She wants to preserve

Every feminine curve,

To keep interest as high as a kite.

As spectators filed out of the booth they were handed cards reading as follows:

*While you've been in our booth . . .*

At least one of your fellow Americans has died by accident (one every 6 minutes) and 100 have been seriously hurt.

Be careful, always—at home, on the job, on the highways.

Thanks for stopping in.

## State Reduces Injuries

THE NORTH CAROLINA INDUSTRIAL COMMISSION announces a reduction in the number of industrial injuries in the state during the No Accident Month Campaign. The official records show that there was a 13.5 per cent reduction of industrial injuries in August '52 over August 1951.

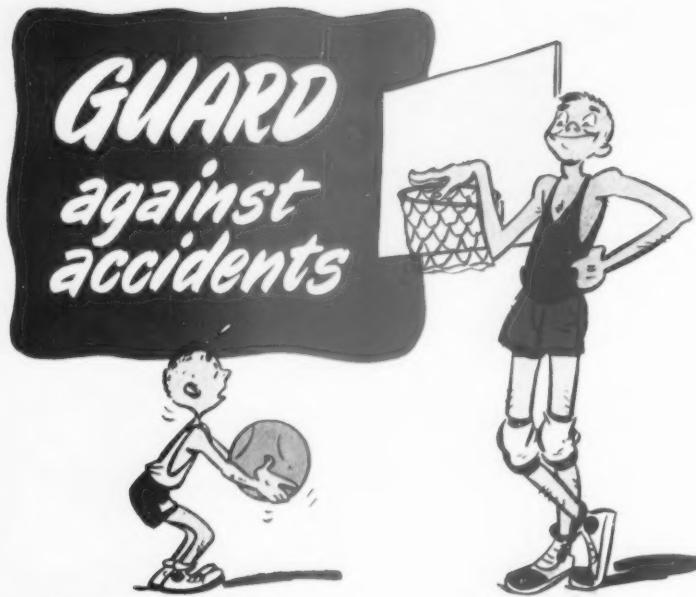
The biggest improvement was shown in the number of industrial deaths which dropped from 20 in August 1951 to 12 in 1952. This is a 40 per cent reduction or, in plain figures, eight people are living who would have been dead if this August had been as bad as August '51 or '50.

There were several thousand more people working in industrial plants than in August 1951.

This proves a big saving for industry throughout North Carolina for the month of August. For instance, official records show that the medical and compensation cost for the fiscal year 1950-1951 was \$84.67 per injury. This would mean a saving of \$110,579.02 on the 1,306 less injuries. Counting the hidden cost, it means four times this amount or \$442,316.08.

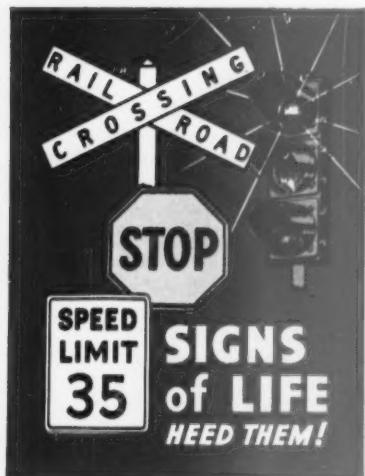
Between 300,000 and 350,000 workers in the state took part in this campaign along with such organizations as eight regional Safety Councils, North Carolina Cotton Manufacturers Association, Southern Furniture Association, Southern Hosiery Association, North Carolina Dairy Products Association, North Carolina Laundries and Cleaners, North Carolina Bottlers Association, Governors' Highway Safety Division, and the North Carolina Society of Safety Engineers who helped sponsor this campaign.

# For a Successful Poster Program



JUMBO POSTER for FEBRUARY 1953

The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 11' 8".



NATIONAL SAFETY COUNCIL  
V-9799-A

8½x11½

This new four color poster is illustrative of the 72 four color posters shown in the 1953 Poster Directory.



NATIONAL SAFETY COUNCIL  
9805-C 25x38

Above new "C" poster, issued monthly, is indicative of the other two color posters—shown in one color on the following pages and in the 1953 Poster Directory.

## IT'S NEW!

THE new 1953 Directory of Occupational Safety Posters has been mailed to all National Safety Council industrial members. *It contains miniatures of 756 posters—top-notch selections on a great variety of subjects.*

All posters shown in the Directory will be stocked during 1953. Additional copies are available at 50 cents each—write to Membership Dept., N.S.C.

Posters miniatured on this and the following pages are NEW—produced and shown for the first time. Excepting the Jumbo poster (left, upper), all will be in stock throughout 1953. Those posters shown in one color on the following two pages are actually printed in two or more colors.

*For a more successful poster program: first, make your selections from the brand new posters shown on these pages and also from the hundreds of illustrations in the 1953 Directory.*

Electrotypes of poster miniatures on this page are not available, nor can payroll inserts be supplied.

Posters below are printed in two or more colors  
(Available only in sizes indicated)



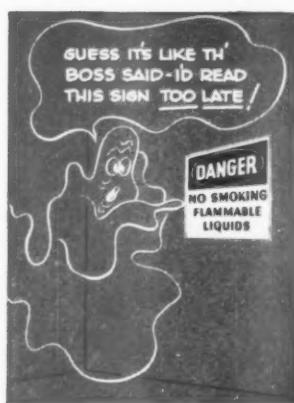
NATIONAL SAFETY COUNCIL  
9706-A 8½x11½



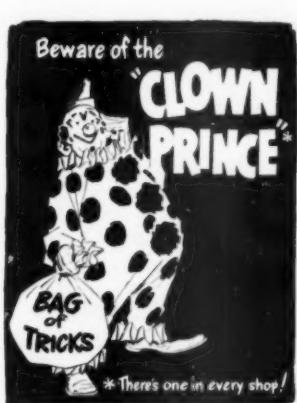
NATIONAL SAFETY COUNCIL  
9740-A 8½x11½



NATIONAL SAFETY COUNCIL  
9771-A 8½x11½



NATIONAL SAFETY COUNCIL  
9743-A 8½x11½



NATIONAL SAFETY COUNCIL  
9795-B 17x23



NATIONAL SAFETY COUNCIL  
9742-A 8½x11½



NATIONAL SAFETY COUNCIL  
9778-A 8½x11½



NATIONAL SAFETY COUNCIL  
9784-A 8½x11½



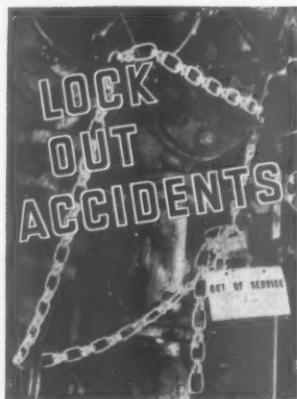
NATIONAL SAFETY COUNCIL  
9726-B 17x23

Electrotypes of payroll inserts can be furnished on all poster illustrations shown above.

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(Available only in sizes indicated)



NATIONAL SAFETY COUNCIL  
9758-A 8½x11½



NATIONAL SAFETY COUNCIL  
9792-A 8½x11½



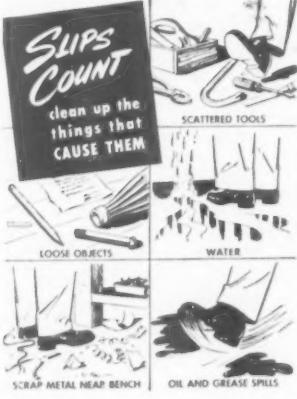
NATIONAL SAFETY COUNCIL  
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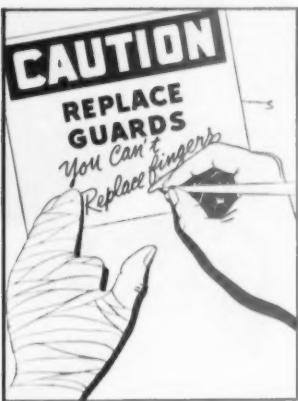
NATIONAL SAFETY COUNCIL  
9647-B 17x23



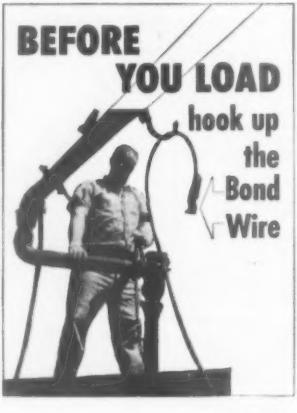
NATIONAL SAFETY COUNCIL  
9794-A 8½x11½



NATIONAL SAFETY COUNCIL  
9752-B 17x23



NATIONAL SAFETY COUNCIL  
9790-B 17x23



NATIONAL SAFETY COUNCIL  
9787-A 8½x11½



NATIONAL SAFETY COUNCIL  
T-9718-B 17x23

Electrotypes of payroll inserts can be furnished on all poster illustrations shown above.

## Green Cross News

—From page 44

his master's degree in the field of research sociology at Ohio State University. He was connected with the public school system for many years as a teacher, editor and lecturer.

Mrs. W. C. Easley, who has been serving as acting managing director, will continue with the Chapter as office manager so that her experience in council work may continue to be available.

### A Rural Safety Council

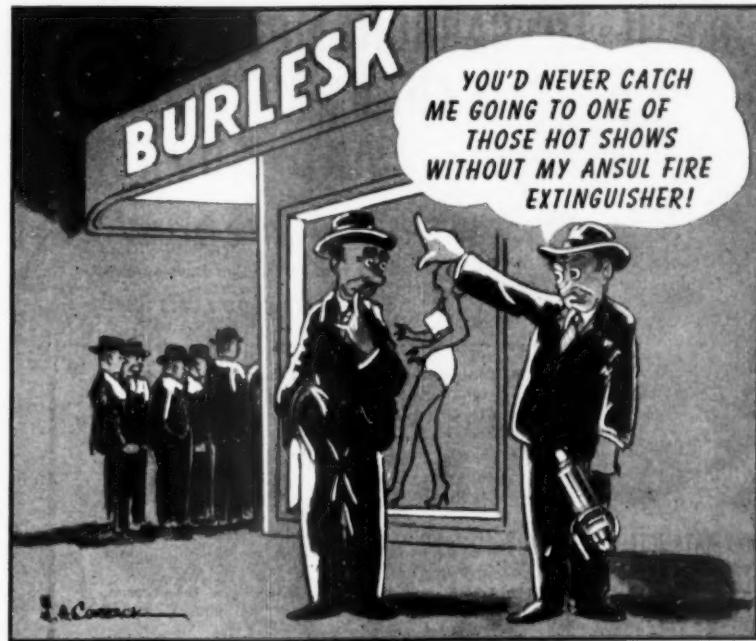
The Missouri Rural Safety Council was organized at Columbia, Mo., on October 27. Its purpose is to carry on and encourage safety work among the rural residents of the state, both on the farms and in the smaller communities. Three members of the St. Joseph Safety Council's farm safety committee, Harold J. Schmitz, chairman; Harry Barton and Webb Embrey, are members of the Works committee of the new council. These men, with George Isaacs, Vic Carothers and Manager Walter Ladd of the St. Joseph Council, attended the organization meeting and have been serving in a consultant capacity.

### Fort Worth Insurance

The effective use of the conference plan in training employees; driver training from the standpoint of industrial relations; the use of visual aids; good house-keeping; and a session devoted to unusual hazards, were the high spots of the recent Eighth Annual Industrial Institute, sponsored jointly by the Fort Worth Safety Council and the local chapter, ASSE. Professor R. E. Jackson of the Texas State College for Women was the keynote luncheon speaker.

### Health and Safety

Recognizing that safety and health are rather closely affiliated, the Nebraska Public Health Association at its recent State Conference in Omaha, featured a discussion of accident prevention in its two-day schedule of health topics. "The Need for Centralized Safety



Ansul Extinguishers have put out thousands of "hot shows" in flammable liquid, gas and electrical fires. Fire-fighters using Ansul Extinguishers are cool customers on two counts. First, the heat shielding screen of dry chemical protects them from

the radiant heat of the fire. And, second, actual experience has given them confidence in the safety, dependability and greater fire-killing effectiveness of Ansul Dry Chemical Fire Extinguishing Equipment.

SEE PAGE 11

This PICTURE, Can be worth \$1,000<sup>00</sup> in the SAVING of FINGERS

Amputated Fingers COME HIGH!

These figures are based on maximum rate of Illinois Workmen's Compensation from Division of Statistics and Research, Illinois Industrial Commission. (Figures for other states are higher).

SECOND FINGER \$1,650<sup>00</sup>

THIRD FINGER \$1,750<sup>00</sup>

FOURTH FINGER \$1,600<sup>00</sup>

ENTIRE HAND \$5,100<sup>00</sup>

FIRST FINGER \$1,200<sup>00</sup>

LITTLE LADY \$2,100<sup>00</sup>

**LITTELL**  
AIR BLAST VALVES  
Pieces forced out safely by air. Blank parts weighing up to 2 lbs. are blown out of press with a standard Air Blast Valve.

**LITTELL**  
Pres-Vac SAFETY FEEDERS  
Blanks fed from a safe distance of 14 inches. Pres-Vac operates from compressed air at 45 lbs. pressure which passes through a venturi to create a vacuum.

**F.J. Littell MACHINE CO.**  
AIR DIVISION  
4165 RAVENSWOOD AVE., CHICAGO 13, ILL.  
District Offices: Detroit and Cleveland

Write for Catalog

# DEATH TO CARBON MONOXIDE, EXHAUST FUMES AND ODORS



## CATALYTIC EXHAUST

(A Houdry Catalyst Development)

Reduces CO to a safe level

- Kills all fumes and odors from exhaust gases of internal combustion engines using white gasoline.
- Assures absolute safety for employees, and increases efficiency.
- Simple, sturdy construction, rupture-proof under explosion.
- Replaces original muffler without changing clearances . . . and easy to install.
- Gives 2,000-2,500 trouble-free hours of operation, after which catalyst is quickly replaceable . . . and at low cost.
- Tested and listed by Underwriters Laboratories, Inc., and used in many of the nation's leading industrial plants.

OXY-CATALYST, INC.  
Wayne, Pa.

Air Pollution Control  
Power and Energy  
Waste Heat Recovery

**WRITE FOR FULL DETAILS AND SPECIFICATIONS**  
and mention this magazine

For  
**SAFETY**  
in marking  
all kinds of  
Metal



The most economical all purpose grade of Safety Letters and Figures. Will give outstanding service on almost any marking job. All sizes—1/32" to 1" characters from stock. Mecco Safety Steel for No Spalling and No Mushrooming.

Write for Catalog 100.

*Use*  
**SAFETY**  
**"HEVI-**  
**BEVL"**

**LETTERS and**  
**FIGURES**



- No Spall
- No Mushroom
- More Service
- Thumb Side Marks for easy identification

**M.E. CUNNINGHAM CO.**  
SAFETY STEEL STAMPS

1053 Chateau Street • Pittsburgh 33, Pa.

"Endeavors" was discussed by your Green Cross News reporter before an audience of approximately 250. At the luncheon following the safety talk a recommendation was presented, urging the organization of a state safety council, to be financed by private industry rather than by state funds.

## Louisiana Conference

The Third Annual Louisiana Safety Conference was held December 1 and 2 at the Roosevelt Hotel, New Orleans, with emphasis on industrial safety problems and marine accident prevention effort. Home, traffic, commercial vehicle and school and college sessions were also scheduled. Featured speakers included Governor Robert F. Kennon of Louisiana, Public Safety Commissioner Bernard J. McCloskey, Col. Francis C. Grevemberg, superintendent Louisiana State Police, Charles White, president Republic Steel Corporation and Earl F. Campbell, director NSC Field Organization. Mr. White was the Monday evening banquet speaker on the subject "Free Enterprise Today." The conference, which was well attended, was sponsored jointly by the Louisiana Safety Association and the Governor's Highway Safety Committee. The NSC Charter, recommended recently by the Conference of Local Safety Organizations, and granted by the NSC Board, was presented to the president of the Association by Mr. Campbell.

## Off-the-Job Queries Run 10 to 1

The growing interest in off-the-job safety on the part of industrial concerns is indicated in the recent 22nd annual report of the Ohio State Safety Council. In the sectional report of A. G. Starrett, vice president for industry, this significant statement appears: "During my terms as vice president we have seen a shift in the nature of the requests made by our company members. In earlier years requests involved occupational problems almost exclusively. This past year off-the-job matters out-numbered the work inquiries about 10 to 1. This trend certainly indicates a wider acknowledgment that off-the-job safety

promotion is important to the employer." . . . Incidentally the report also shows a big reduction in occupational fatalities in Ohio during the past ten years. In 1942 these deaths numbered 508. Last year there were 404 occupational fatalities.

#### Heads K. C. Congress

Paul Kramos, safety director for Butler Manufacturing Company, Kansas City, has been named general chairman for the Central States Safety Congress to be held April 9-10 in that city. The planning committee and the coordinating committee were already at work in November while all sectional chairmen had their groups lined up and were on the job in early December.

#### Plant Noise Reduction

An interesting joint meeting of the Industrial Division and the Nursing and Health Section of the Greater Grand Rapids Safety Council, with the local branch of the American Hygiene Association, was held on November 25 for the purpose of discussing "methods of reducing the noise of industrial machines." The speaker was Richard N. Hamme, a specialist from the University of Michigan who has done considerable research on the subject of noise and its effect on accident occurrence.

#### Portland Industrial Meeting

The Honorable Douglas McKay, governor of Oregon, recently named by President-Elect Eisenhower as Secretary of the Interior, gave the keynote address at the Fourth Annual Safety Conference held in Portland December 4 and 5. The conference was sponsored by the State Industrial Accident Commission in cooperation with the Governor's Industrial Safety Advisory Committee and "management and labor of Oregon." Ten industrial sessions were held, with emphasis on logging, the transportation of logs and sawmill operations. Paul Gurske, chairman of the State Industrial Accident Commission, was general chairman of the Conference. Features included a "Safety Fashion Show" staged by the Portland Chapter, ASSE. —Next page

## Group of RUEMELIN Fume Collectors Keeps Shop Clear of Welding Fumes

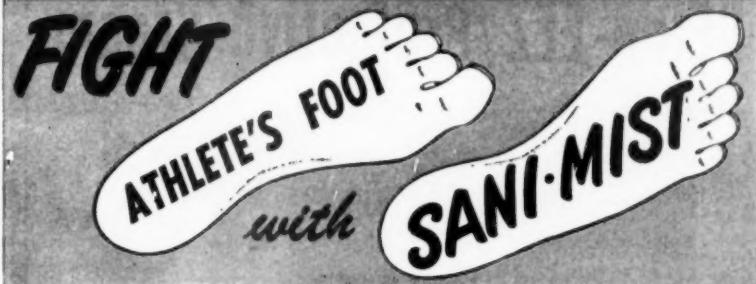


This well ventilated welding department is typical of hundreds of similar installations. Welding operators appreciate smoke and gas-free atmosphere. Thousands in service. Many repeat orders. Collecting fumes at the source with local exhaust hoods has proven most practical in operation. It is particularly helpful in winter months when doors and windows are closed. Write for Bulletin 37-D describing all types of Ruemelin Fume Collectors.

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### T. R. Alexander Heads Safety Council

T. R. (Tom) Alexander, assistant superintendent for the Lethbridge Division of the Canadian Pacific Railroad, was named president of the Lethbridge Safety Council at a recent reorganization meeting of the group in that city. Mayor A. W. Schackleford is honorary president. Mr. Alexander is a brother of Charles F. Alexander, director of the NSC Industrial Department. Representatives from the Alberta Province Safety Council, Edmonton, attended the meeting, including Safety Director Paul Lawrence. A holiday campaign against drunken driving and careless use of Christmas trees and ornaments in homes, was outlined by the new president and adopted by those present.

### Workmen's Compensation

—From page 26

forces at work to the best advantage of all concerned.

We use frequency and severity figures to show relationships between our accident prevention achievements and those of others. They also are used to compare progress with the past and to motivate management to recognize the necessity for accident prevention efforts. Isn't it also necessary, then, to consider compensation costs in relation to production costs and to use them to indicate the need for additional accident prevention efforts? An injury results from some weakness in overall production control and then claim results from the injury.

In order to properly evaluate and control all the factors involved, we must have an understanding of the relationships between these three subjects: production, injuries, and compensation. It is only by this understanding that we maintain production at its peak and keep injuries and compensation cost to a minimum.

By discussing the Workmen's Compensation law, we are not trying to say what are or what should be the proper decisions to be rendered. We are just trying to enumerate some of the decisions which have been made in order

that the reader may know what has happened to others and what might possibly happen on his own part. By realizing as many as possible of the many factors involved, it may be possible to give better consideration to controls which should be set up to prevent injuries from occurring in the first instance, for both the employer's and the employee's benefit.

It is impossible to cover such a broad legal subject as Workmen's Compensation in a few articles. It may be possible however, for us to emphasize enough of the high spots to install the desire in the reader to actually investigate the rulings in his own jurisdiction and become the wiser therefrom.

## Dangerous Workplace

—From page 23

and floor level); elevated working surfaces (stairs, scaffolds, roofs, etc.); portable working surfaces (ladders, chairs, boxes); falls into working surfaces (floor openings, excavations).

What was the condition of the working surface on which the accidents in the Illinois study occurred? Forty per cent were caused by slippery, oily, icy, or waxed surfaces. And what can we determine from this? We know that at least one-half of all these working surface accidents *could have been avoided by proper housekeeping.*

The most important part of the safety engineer's job is to determine if an accident hazard exists. *Locate or recognize* is the key to accident prevention. The follow-up, or action, is the next step to be taken to eliminate the condition or practice responsible for the accident.

Industry has been successful in accident prevention because it has learned that injuries must be properly analyzed to show in what areas and in what working procedures they occur. In this way the areas with especially high rates can be given greater attention. Industries are compared with one another through the simple medium known as accident frequency rate—a figure based on the number of disabling injuries sustained



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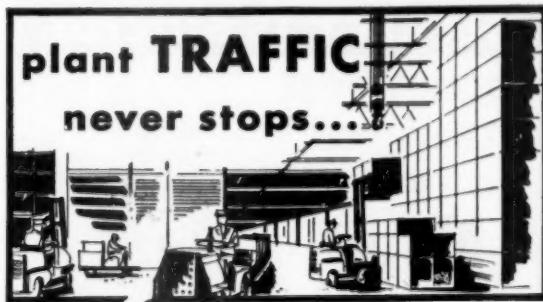
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for every million man-hours of exposure.

The problem of industrial accidents, when first approached, was frightening. The job looked too big to tackle. In addition the general feeling prevailed that accidents were inevitable. But nothing is too big for us to tackle and beat. Accidents can be controlled.

The proof of this lies in a report from the National Safety Council. Since the era of 1935-39 through 1951, there has been a decrease of 31 per cent in the frequency rate of occupational accidents. This is a tribute to all those engaged in accident prevention.

Of the 33,000 workers accidentally killed last year from work, 5,700 of them received their fatal injuries as a result of a home accident. When we think of this we can readily see why the prevention of off-the-job accidents is important—to the home, to industry, to our country.

The plant safety engineer has changed his approach to the solution of the accident problem. He is extending safety from his plants into the streets, highways, and even into the homes through well-planned off-the-job safety programs designed to do an effective job of preventing accidents wherever they may occur. They know that off-the-job safety programs will have a tremendous effect on the safe living habits of all the members of the employees' families. *Let us keep this in mind:* almost every person injured in your community is related to a worker, and because of this fact any accident that occurs in the home, however slight, is bound to affect a worker and in turn affect industry.

You may be interested in some comparisons of industry vs. off-the-job accidents. I learned the other day that a firm in New Jersey during the first six months of the year, had industrial accidents that resulted in 16 days lost time. During the same period off-the-job accidents cost the firm 3,200 days of their employees' time. Another firm had seven times as many employees accidentally killed away from work as at work during a 19-year period, and still another, a food preparation corporation, estimates

it has about eight times as many employees killed by accidents off the job as at work. You can understand why management is concerned about home accidents.

I have been demonstrating an analogy between certain types of industrial accidents and home accidents in order to point out that the kinds of accidents occurring in the home each day are not new to the safety engineer. The approach to the solution of home accidents may be a little different, but the practical know-how of the safety engineer can be equally well applied to them.

Some people viewing an accident look only at the present and say there is a simple, single cause for it that has a simple, single effect, such as bodily injury or property damage. That is a false conclusion. We have found in accident prevention work that such occurrences have complex, multiple causes and have complex, multiple effects.

We have also found that these causes and effects are not only interrelated but interdependent. That is why in the field of safety engineering we have an established procedure to determine *the cause of an accident*. Each essential point of information about an accident is referred to as an accident factor and these are grouped into six major classifications.

1. Agency of the injury—the tool, material, machine most closely associated with the injury.

2. Agency part—particular part of the selected agency most closely associated with the injury.

3. Unsafe mechanical or physical condition—condition which could have been guarded or corrected.

4. Type of accident — manner in which the employee was injured.

5. Unsafe act contributing to the accident—the violation of a commonly accepted safe procedure.

6. Underlying causes of the unsafe acts and unsafe conditions.

And *the effect of an accident* may be considered as the personal pain of the injured worker, the time spent in the treatment of the injury, the time lost in making proper reports, insurance costs, etc.

When a doctor is called in to look at a sick child, he does not jump to a conclusion at one sign or symptom of illness. No, he

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looks into the child's eyes, nose, mouth, ears and makes other observations. These are not perfunctory actions; he is looking for evidence upon which to make a diagnosis, that is, he is looking for a group of signs and symptoms that occur together and characterize a disease. This is known to the medical profession as a syndrome — a cluster, family, group pattern of symptoms.

So it is with the safety engineer. We must be able to determine our syndrome through training and experience and, as in the case of the doctor, make a proper diagnosis and give a prescription.

In the science of accident causes there are two aspects—environment as a cause; and person as a cause. There are two kinds of accidents—so called "Acts of God" (about 2 per cent) and accidents where individual responsibility is involved (98 per cent). Our biggest question in home safety is "Why did she do it?" followed by, "She should have known better."

Then of course we always have the accident-prone individual. The accident-prone person has been the subject of many studies—mostly dealing with industrial and motor vehicle accident occurrences. Those who have made these studies tell us that often certain characteristics of accident-prone persons are:

1. A tendency to refuse personal responsibility.
2. Resistance to authority.
3. A tendency to seek constant changes in environment.

They also tell us that a highly disciplined person is the opposite of the accident prone.

As mentioned, accident-proneness has been the object of special studies and a factor we might well keep in mind when attempting to do effective accident prevention work. A person of this nature needs special attention, just as in industrial accident prevention certain people do not react positively to group education. Our diagnosis should determine the basis for our action.

Another factor often used in determining industrial accident causes and having a very real counterpart when considering home accidents is fatigue. But, as in the field of industrial safety, there is

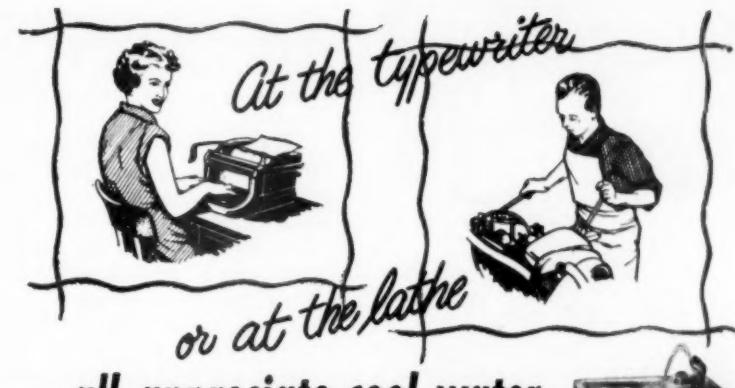
a great void in our knowledge of the factor of fatigue as an accident cause. As mentioned before, one of the major difficulties in solving accident problems has been the lack of information as to why people behave as they do. We recognize that environmental conditions affect the performance of people in one way or another. For example, so called industrial fatigue is at least in part the result of the worker's exposure to his job environment. Similarly we can easily see how a housewife's daily chores become monotonous and cause fatigue.

Fatigue has often been connected with activity. One popular definition describes fatigue as a reduced capacity for work which is caused by work; work in this case being used in the physical sense. It is implied, therefore, that fatigue is brought about by muscular effort.

This could conceivably have been true many years ago when everything was done by hand—when we had to beat the carpets instead of using the vacuum, when we had to gather and store wood and coal for the range in the kitchen instead of just turning a knob. Today, we are not required to work with much physical exertion. Therefore, fatigue as we know it today must be attributable to other sources. Psychological and environmental factors are considered far more important causes of fatigue.

The factor of fatigue is an important consideration in dealing with home accidents. A woman's housework can become drudgery, and I have often heard such an expression when referring to housework. I don't believe I have ever heard it used when talking about work in the factory. When referring to housework fatigue, we think of it as something that diminishes the individual's capacity for performing the activity which caused it. We can recall instances where we have felt tired and stopped doing one thing only to become completely refreshed when another more favorable activity (at the moment) is attempted.

We know many causes of fatigue among housewives such as



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muscular or nervous tension; sitting or standing too long without moving; personal factors such as monotony, worry, fear, and lack of sleep.

We have been told that atmospheric conditions and poor ventilation appear to have an appreciable influence on accident rates. How many ladies can tell the temperature of a room in which they work most—the kitchen? True, they can tell me that a particular cut of meat must be cooked for a certain length of time at a specific temperature. But do they know that the results of tests show that there is an optimum temperature of about  $67\frac{1}{2}^{\circ}\text{F}$  at which accident incidence is at a minimum. And that accidents increase as the temperature rises above or falls below that point?

Poor lighting and numerous other emotional and physical conditions exercise a very decided influence on the state of a housewife's energies and ability to do in a safe way the normal and

accepted easy chores in the household. We often wonder why some women, when they wish to get something from a high shelf or fix the drapes or curtains, will take a short cut by standing upon the first handy thing in order to reach, rather than to take time to get something sturdy to stand on?

The safety engineer studies the specific environmental conditions in his plant that produce accidents. They can be controlled for the most part and they are responsible also for the harmful effects on personnel. For example, poor lighting and atmospheric conditions generally can be corrected within practical limits. In industry the minimum amount of lighting on a work bench has been established as between 30 and 100 foot-candles and for general lighting 20 foot-candles. Many housewives, particularly when preparing the evening meal, fail to have this amount of light and wonder why they feel tired.

Some sub causes such as car-

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bon tetrachloride and carbon monoxide, cause mental confusion, headaches, or visual disturbances. How many housewives realize that the gas with which they cook is gradually taking life-giving oxygen out of the air in the kitchen, and that if the oxygen is not replaced the result will be a personal injury?

These and similar conditions that cause accidents are recognized and guarded against in industry. How far more important it is for them to be a source of concern in the home. Only a major accident with resulting serious and extensive personal injury and property damage will stop a plant from operating. But it takes just a small home accident to throw a family into turmoil and emotional confusion. The home is the hub of our nation. It should be protected from the danger within—home accidents.

What actions can *you* take to prevent home accidents?

First, make conditions in your own home as safe as possible and set the proper example for the rest of the family, particularly the young. Second, sponsor and start community safety activities in your neighborhood. Third, encourage your local officials and safety councils to continue their accident prevention endeavors.

And to you safety engineers a special message—develop and activate a well rounded “off-the-job” safety program.

#### What Makes Them Tired? —From page 25

indicating that for 889 truck drivers studied, each in good health as proven by medical examination, those men who had driven less than ten hours in one day had a higher average efficiency based on tests of simple motor functions, than those men who had driven over ten hours. Those who had not driven at all had the highest efficiency average in the same tests. These tests included speed of tapping, reaction-coordination time, simple reaction time, manual steadiness, body sway, driving vigilance and the ability to distinguish flicker.

A study performed by the National Safety Council<sup>6</sup> a few

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years earlier, showed the effect of fatigue on trucker accidents. It found that one driver in three who had an accident because of falling asleep is a truck driver. In the analysis of the accidents, it was found that a third of the truckers had been driving from four to eight hours, but about the same number had no sleep in more than sixteen hours.

During the first World War a striking study,<sup>7</sup> showing a relationship between accidents and fatigue, was conducted at a fuse factory employing about 10,000 workers. The work at first was 12 hours (75 hours a week) but later was reduced to 10 hours (58½ to 64½ hours a week). During the 12-hour day period, the women workers experienced 2.73 times as many accidents as they did when working 10 hours. The men, who felt the fatigue of the long hours much less than the women, experienced accidents 1.14 times more frequently.

It is interesting to observe that a reduction of hours at work led to a decrease in the accident rate, as well as in the total number of accidents. This was substantiated some years later by a survey<sup>8</sup> covering 34 plants which showed that injuries increased as work hours increased, not only in absolute numbers, but also in the rate of incidence. Therefore, as the work week was lengthened, not only did the number of accidents increase, as would be expected because of greater exposure, but the rate of accidents increased.

These studies show that under conditions associated with fatigue there is an increase in accident rate as well as a coincidental decrease in production. It must be remembered that the association between accidents and fatigue is purely one of situation. The actual presence of fatigue has not been shown, but on the circumstantial evidence, the guilt of "fatigue" as a destroyer of plant efficiency is established. The fatigue problem is a real one for safety engineers, in general, and industry in particular.

Management should not lose sight of the rule that injury-producing accidents result in only a partial percentage of the total

losses caused by the factors that produce incidents. There are many other harmful and costly effects produced by fatigue for management to attend to. The quantity of inferior work and spoiled work by a tired worker is likely to be greatly in excess of the average. A fatigued worker will make mistakes. These may damage machines, result in waste of product and material, or may be the cause of clerical or correspondence errors, resulting in a loss of good will. It would be no exaggeration to say that losses due to fatigue cost industry much more than the dollars it spends for compensation claims.

Using current information, some practical recommendations<sup>9</sup> for the control of fatigue can be made:

1. Each employee should be trained in the work habits which tend to the production of the maximum output with minimum effort.

2. Each employee should be selectively placed at the proper job, so that his work requirements will match his physical and mental abilities.

3. The job should be engineered so as to obtain the maximum efficiency from the employee's efforts. Factors such as illumination, ventilation, posture, awkward movements, safety and health hazards, noise and general plant environment should be considered and controlled according to accepted practice.

4. It is advisable to provide a ten-minute "break" in the morning and afternoon work periods, scheduled for about two hours before the end of the work period or shortly before the calculated accident peak for those periods.

5. The supervisor should make a point of assuming a friendly interest in the workers of his department and should make them feel important to the department and the company. He should keep in mind the advisability of trying always to reduce any possibility of friction among the employees or between employees and himself.

6. Educational programs which teach the rules for good posture, hygiene, nutrition, rest and recreation, should be planned and provided.

7. It is advisable to avoid a work week in excess of 48 hours on a six day a week basis, whenever possible.

8. It is practical to provide facilities that will make milk, soft drinks and nutritious between-meal snacks available at all times.

9. When work is monotonous or repetitive, it has been worth while to allow a five-minute period of rest in each work hour.

10. If the speed of production lines must be increased, the change should be made only after careful consideration has been given to the possible cumulative fatigue effects of the added



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activity demand of the speed-up.

11. Frequent changes are apt to be detrimental because of their interference with the "rhythm" of work. It is also inadvisable to rotate shifts frequently. If shifts are to be rotated, a better schedule would be one change every two or three months, rather than every week or two.

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### Chains

—From page 35

At the end of each lifting arm is a projection that keeps the lifting edge in place during the lift. An additional safety feature is a safety chain on each lifting arm to help keep the load secure during the lift.

Figure 5 shows the use of two special chain assemblies used to turn one of our diesel engine blocks. These chain assemblies each have four separate legs. You will notice that each four-chain unit includes two grab hooks which are attached to the two short legs. This makes it possible to easily adjust chain lengths, and maintain proper balance and control during the turning operation.

Figure 6 shows a chain with a badly worn link. Before we had close control of our chains, it was not uncommon for a chain of this type to remain in service long after it needed repair. The condition of the first link shows why periodic chain inspection is so important.

—Next page

**What  
are  
accidents  
costing  
you?**



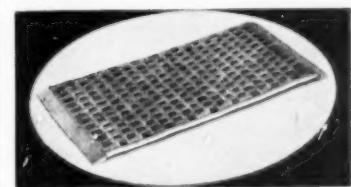
## PREVENT SLIPPING and FALLS

with

## TUF-TRED

Rubber Fabric Link

## SAFETY MATTING



A low-priced, superior grade matting equipped with non-trip beveled safety nosing on the ends. Thickness:  $\frac{5}{8}$ ". Width: Up to 6 feet. Any length.

Nothing industry buys saves money and serves in as many ways as floor matting.

## AMERICAN MAT CORP.

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Please send literature and prices on Tuf-Tred Safety Matting.

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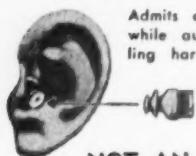
City & State.....

Name of Supplier.....

IN CANADA: American Mat Corp., Ltd., Cenado Trust Building, Windsor, Ontario

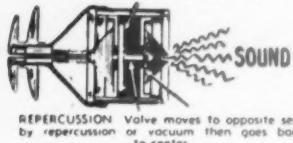
**NEW DEVICE PROTECTS  
HEARING SCIENTIFICALLY**

**Lee Sonic EAR-VALV**



**NOT AN EAR PLUG**

CLOSED VALVE BY CONCUSSION



**HEAR DESPITE NOISE**

- IN EFFECT, A PROTECTIVE EAR DRUM
- STOPS HARMFUL EFFECT OF NOISE
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- LEAVES EAR CANAL OPEN
- THE ANSWER TO INDUSTRY'S NOISE PROBLEM

**AVOID LAWSUITS FROM DEAFNESS**

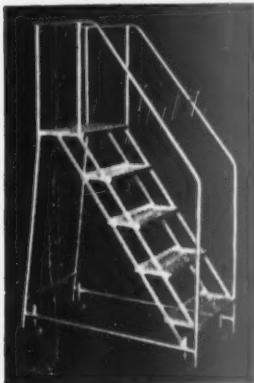
Send for literature

**Sigma Engineering Company**

1491 VINE ST. LOS ANGELES 28, CALIF.

**COTTERMAN**

**WELDED STEEL SAFETY LADDERS**  
For Filing Rooms—Stock Rooms—Vaults



**45—5 Step**

New improved design now being made from 1" diam. round furniture tubing.

Mounted on Swivel Brake Casters which allow the ladder to be rolled freely when no one is on it. When you step on the ladder the rubber cushioned legs rest on the floor and prevent rolling.

Made in 7 heights:—18" 2 Steps, 27" 3 Step, 36" 4 Step, 45" 5 Step, 54" 6 Step, 63" 7 Step, 72" 8 Step.

All are made in either 20" or 26" width.

Send for Circular No. 52-N and prices on these ladders and our full line of Wood Rolling Ladders.

Manufactured by

**I. D. COTTERMAN**  
4535 N. Ravenswood Ave. Chicago 40, Ill.

Figure 7 shows a comparison of an elongated or stretched link with a new or normal link. You will notice that the clearance between the links at the bearing joints has been reduced considerably. The result is that such a chain loses all or most of its flexibility and usefulness.

Figure 8 shows a break that developed during a proof test in which a 100 per cent overload was applied. You will note that the link did not break during the test. Only by minute visual inspection following the testing was this defect noticed. The break in the chain itself shows why proof testing is important. There was nothing on the chain prior to the test to indicate a weakness at the point where it yielded. The round link with an apparent break is not a chain link, but the link used only to attach the identification tag. This attaching link is not welded until after the chain has been tested and visual inspection completed.

Figure 9 shows the result of the prolonged dragging of a chain over a concrete or hard surface floor. Approximately 10 per cent of the diameter of the chain links has been worn, thus reducing the chain strength accordingly. This condition can be detected only by periodic visual inspection. The condition is correctable by effective instructions and follow-up to eliminate the practice of dragging the chains over surfaces that can cause abrasion of the chain.

Figure 10 is a sectional view of one of the links of the preceding chain which had been abused by dragging over a concrete floor. The chain link is no longer round. Two surfaces are flat due to the wearing of the chain through contact with the hard surface over which it was dragged.

Figure 11 shows our atomic hydrogen welding machine. This is accepted equipment for producing clean, sound welds in all types of chains. The operator is using a universal type fixture or holding device to hold the chain in position. You will notice the weights on each side to hold the chain in place during the welding operation.

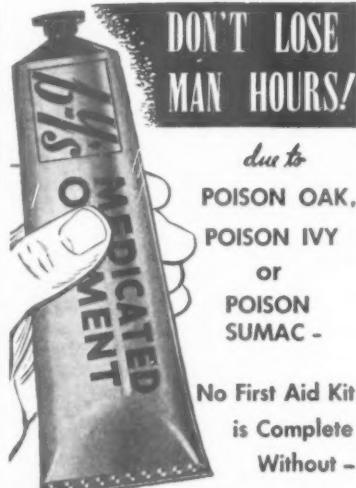
Figure 12 shows our chain testing equipment in which chains up to one inch are proof tested after a chain has been welded, heat-treated, and checked for hardness. The machine itself is of horizontal I-beam construction. It is 30 feet in length and the pull is accomplished by means of hydraulic pressure and suitable controls located away from the machine itself.

You will note the expanded metal guard over the chain while the pressure is applied. This guard is to prevent the chain from escaping from the machine in the event of breakage during the test.

Figure 13 shows the chain testing control panel. By the use of the control wheel, the operator slowly applies the proof load to the chain to the limit and then releases it. The two lower recording dials make a permanent recording of the proof load of the particular test being done.

**Why cure?**

**PREVENT!**



**MEDICATED OINTMENT**

**NOW USED BY**

U. S. Forestry Service, Region 5, GSA stock item 51-0-798-25, California State Division of Forestry, So. Calif. Edison Co., Pacific Telephone & Telegraph Co., Calif.-Oregon Power & Light Co., Rhode Island Division Forests & Parks, Assoc. Telephone Co., Santa Monica, and many others.

For your convenience and to fit your first aid kits, 3 ounce—1/2 ounce and 1/4 ounce tubes.

**REFERENCE AND LITERATURE ON REQUEST.**

Manufactured By  
B-Y'S of California, 3010 W. 7th St., Los Angeles

To help insure the safety of the operator, the chain testing control panel is located approximately 10 feet from the resting machine.

Figure 14 is a chart of one of our chain record cards. Each of our chain and other lifting devices in which a hook is attached has one of these cards.

By means of the face side of these individual chain cards, we maintain a complete description of each chain, the equipment it will handle safely for which it was designed, the safe load limit, the chain's home address or department that it will be used in, and the date the chain was fabricated, or purchased.

Figure 15 shows the reverse side of our chain record card. With this it is possible to keep up a running record of the various chain repairs, heat treatment, and inspection. It is through a periodic check of this part of all the record cards, that enables us to select the chains that are due to be brought in for periodic inspection. The card serves a dual purpose—a device for recording and a means for scheduling regular inspections.

## Flame-Resistant APRONS and SLEEVES

Specially treated duck to provide protection!—with the BASCO guarantee of QUALITY! Ideal for welders! Heed the need for safety—BUY BASCO!

### Other "Safety Firsts" —

Welders' curtains! Neoprene aprons for protection against acids! Gloves! Hand pads for steel handlers! All BASCO-Quality products.

### Here's Something New!

#### Try Them!

Send for Free Sample  
Padded cotton sweat bands. Fit securely on forehead—prevents perspiration from dropping into eyes or on eyeglasses. Practical, useful—and so economical!

What are your needs?

Write for samples and prices.

### Associated BAG & APRON CO.

2650 W. Belden Ave., Chicago 47, Ill.  
phone: Albany 2-7121

The discussion so far has been on our procurement, maintenance, and inspection program. The safe use of chain slings and similar equipment is a subject in itself. We can only review some of the common unsafe practices or uses of chains as we have experienced them at our plant.

1. There is the *unsafe practice* of using the wrong size or wrong type chain sling for the job. For example: when too short a chain sling is used to lift too wide a load, it causes the chain to be used at such an angle that a chain that was designed to lift safely at an angle of 60° or even 45° is greatly overloaded and *unsafe* when used at an angle of 30° or less.

2. There is the *unsafe practice* of ignoring the center of gravity in making certain lifts.

3. There is the *unsafe practice* of insecure gripping of the load such as forcing a hook into an opening. Such a practice often times results in the weight of the load being carried directly on the point of the hook rather than at the bottom of the hook. Unless a hook is especially designed to carry the load toward the point, we must make sure that the load is always properly set in the bowl of the hook.

4. There is always the problem of chance taking by someone connected with or in the vicinity of operations in which chains and similar equipment are used, such as working or walking under suspended loads—in other words, why worry about suspended loads—I haven't had one drop on me yet.

These unsafe acts and many others, and the problem of developing and maintaining a continued high degree of safety-mindedness are an important part of any chain program. It is a phase of the program that we are working on now and which when completed will be made a part of our chain standard practice.

To develop our program, we have borrowed freely from many companies. We have had a lot of help, too, from the chain manufacturers, and we are learning something every day about chains.

We still have much to do in the way of developing safe procedures and then assisting the foremen in instructing and reviewing these procedures with their employees—those who are subject to injury when safe practices are violated.

The basis for our chain program is our Standard Practice No. 550.20 which covers the program as we have it developed to date.

a little dust  
or a  
**LOT**

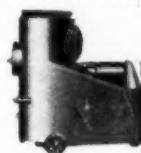
## HOFFMAN has the right kind and size of VACUUM CLEANING EQUIPMENT to remove your hazard

Put your dust problem up to Hoffman. Our engineers have helped every type of industry to eliminate dust hazards, including abrasive toxic and explosive types. The complete line of Hoffman vacuum cleaning equipment is built for heavy-duty industrial service... higher suction, greater capacity... available with T.E.F.C. Class I and Class II motors for hazardous locations. Write for Free Survey and descriptive bulletins.



### portables

HoffcoVac 15  
operates 35-foot  
length of hose



HoffcoVac 30  
operates 50-foot  
length of hose

Also, HoffcoVac 50 and 75 for use with longer hose lengths, on heavier dust accumulations. PLUS Gasoline-Engine Powered Model.

Hoffman also builds Multi-stage Centrifugal Blowers and Exhausters, for air or gas, in a wide range of capacities, PRESSURES and VACUUM.

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CANADIAN PLANT: NEWMARKET, ONT.

# WORLD'S LARGEST MANUFACTURER

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- Safety and Service Emblems
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STOCK EMBLEM



1933 SERIES . . . 1 1/4" dia., hard glazed enamel, heavily gold plated. Pin and safety lock catch, \$10.50 doz. (plus Fed. Tax).

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For Safety  
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HAT

Combines utmost protection  
and style. Exclusive patented  
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CHIC MAID HAT MFG. CO., Inc.  
630 HIGH STREET  
BUFFALO 11, N.Y.

## Calendar Contest Winners for November

First prize in the National Safety Council's Safety Calendar Contest goes this month to Mrs. Georgia E. Thompson of Washington, D. C. The theme in this contest was be ready for emergencies. Mrs. Thompson's line was adjudged the best of all those submitted. It was:

*That his craze starts a 'raze,' stops a 'raise.'*

Second prize went to Slyria D. Miller, Behr Manning Corporation, of Troy, N. Y., for this line:

*Why it started, his mind never weighs.*

Third prize was awarded to Mrs. F. H. Burt of Marshalltown, Ia., for the following line:

*He's so 'all-fired' lax in HIS ways.*

The limerick for November was:

*A fire-alarm friend, Sparky Hayes,  
May be found watching any big blaze.  
So it's really amazing,  
With all his blaze-gazing*

Thirty \$5 awards were issued to: Carol Ann Talley, Cape Girardeau, Mo.

Mrs. Eunice Pierre, New London, Conn.

Mrs. J. W. Smith, Detroit, Mich.  
Carl R. Adams, San Diego, Calif.  
Virginia Weil, New York, N. Y.  
Mrs. D. D. Orr, Mt. Enterprise, Tex.  
Miss Jessie E. Strader, Aberdeen, S. D.

Mrs. Ruth Zimmerman, Pine Grove, Pa.

Frank Cowan, Chief Engineer, Arnold Brothers, Inc., Perry, Ia.

Miss Edith Phillips, Santa Monica, Calif.

Mrs. Jeanette Graham, Beresford, S. D.

Mrs. A. R. Poole, Corvallis, Ore.  
Mrs. Edward G. Ebert, Asheville, N. C.

Mrs. S. C. Newcome, Brookville, Pa.  
Mrs. William Foster, The Plains, O.  
Mrs. Francis D. Ross, Bayside, Long Island, N. Y.

Ann Brower, Keota, Ia.

Mrs. Marvin C. Neel, Spokane, Wash.  
Mrs. J. M. Kahn, Chisholm, Minn.  
Keith Hixson, Columbus, Ohio.

Mrs. Louis C. Ward, Indianapolis, Ind.

Ivan L. Herring, Power Department, Dow Chemical Company, Midland, Mich.

Mrs. Marian Conn, Kalispell, Mont.  
Mrs. Anna F. Biele, Cleveland, Ohio.

R. D. Harris, West Palm Beach, Fla.  
J. F. Cooper, District Manager, Idaho Power Company, Ontario, Ore.

M. M. Leitch, Dundas, Ontario, The Steel Company of Canada, Limited, Hamilton, Ont., Canada.

Mr. G. Greenway, Accounting Department, Canadian International Paper Company, Hawkesbury, Ont., Canada.

Mrs. R. E. Hamilton, North American Cyanamid Limited, Niagara Falls, Ont., Canada.

Mrs. H. B. Brown, Montgomery, Ala.

## MERRILL MATERIALS HANDLING DEVICES



**MERRILL BROTHERS**

## NOLAN ONE-MAN CAR DOOR OPENER



Opens Doors in 20 seconds or less



The Nolan Car Door Opener gives one man a tremendous amount of pulling energy, to get the most stubborn, hard-rolling door wide open in a hurry!

No gang needed. No mangled limbs or loss of life. A few quick pulls on anchor chain gets any door open in a jiffy. The NOLAN saves its low initial cost in first hour of operation.

New safety and efficiency features now make the Nolan One-Man Car Door Opener a more necessary labor-saving money-saving help than ever before.

## MANY THOUSANDS IN CONSTANT DAILY USE!

Free Literature.

Order one or more  
NOLAN Model-H Car  
Door Openers now.  
Catalog on request. F.O.B. Bowerston

**\$29 50**

**THE NOLAN COMPANY**  
126-C Pennsylvania Street, Bowerston, Ohio

# New safety equipment for industry

Further information on these new products and equipment may be obtained by writing direct to the manufacturer or to National Safety News. Accompanying coupon is for your convenience.



## Magnetic Lifter and Feeder

A market-tested magnetic hand tool for feeding steel into punch presses is now available. A new tool can be quickly adjusted for pieces of almost any size or shape and the self-aligning magnetic blocks overcome irregularities, dirt and chips.



Releases instantly at a slight twist of the wrist. Removes or inserts parts in press. Separates stacked sheets. Feeds sheets, formed parts, even castings. Also used for removing slugs from dies.

**Multifinish Manufacturing Co., 211 Monroe Ave., Detroit 7, Michigan.**  
*Item 1.*

## Motorized Sweeper

An improved motorized industrial plant sweeper for heavy industrial sweeping jobs has been placed on the market. A powerful rotary brush sweeper and heavy-duty vacuum cleaner combined into an integral unit, the machine is said to be highly efficient on dust, dirt, steel shavings, scrap



paper, grass, leaves, small metal parts and milling debris.

The sweeper is pointed out to be a practical unit for cleaning floors in large factories, warehouses, commercial buildings, schools and for sweeping parking lots, freight docks, sidewalks, etc. Sweeping is done by eight 36-inch hardwood Palmyra filled brushes welded into a single circular unit 17-inches in diameter and 36-inches long. The effective sweeping area is in-

creased to 48-inches by use of the side brush attachment. For more information write:

**Multi-Clean Products, Inc., 2277 Ford Parkway, St. Paul 1, Minn.**  
*Item 2.*

## All-Purpose Cleaner

A new all-purpose cleaner known as Franklin's Liquid Detergent has been introduced by the Franklin Research Co.

The detergent is a concentrated neutral cleaner which may be used diluted with hot or cold, hard or soft water. It cleans and deodorizes in one operation without scrubbing, is fast acting and safe for all surfaces on which a water-soluble cleanser may be used.

**Franklin Research Co., 5134 Lancaster Ave., Philadelphia 31, Pa.**  
*Item 3.*

## Gas Detector

Underwriters' Laboratories, Inc., has listed the MSA Explosimeter Model 2 for use in detecting hazardous gas or vapor-air atmospheres. A special filter cartridge, incorporating a chemical reagent, used with the instrument when sampling leaded gasoline vapor, is also listed.

Provided with this instrument, powered by flashlight batteries, is a sampling line of synthetic rubber, recommended for use in remote sampling of atmospheres which may be explosive. Full details are available upon request to:

**Mine Safety Appliances Co., Bradford, Thomas & Meade Sts., Pittsburgh 8, Pa.**  
*Item 4.*

## Test-Glo Tester

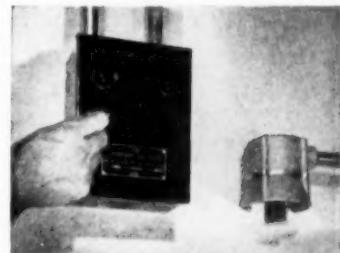
A new pocket-size tester for checking electric circuits, spark plugs, motors, fuses and a variety of electrical equipment has been developed. Capacity includes voltages from 80 to 600 AC or DC.

Safety features of this tester includes 24-inch lead wire between test prods, permitting wide span; 5-inch prod handles for deep probing; safety-rings on prods to prevent fingers contacting tips; 10,000-volt lead wire; high grade resistors between each prod and lead to limit voltage in the lead; neon lamp at front of prod in line-of-sight; all parts sealed against moisture. For details write:

**Ideal Industries, Inc., 4135 Park Ave., Sycamore, Ill.**  
*Item 5.*

## Explosive-Gas Alarm

Designed for a wide range of applications the new J-W Model E combustible gas alarm offers protection at low cost. By maintaining a continuous watch for the appearance of potentially explosive gases, the Model E minimizes the danger of hazardous operations. The instrument consists of two units: the weather-resistant



detector and the control box which is mounted at a remote location.

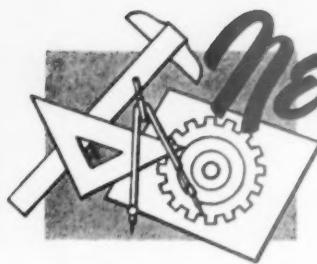
Operating by diffusion and convection, the flashback-proof detector senses the presence of combustible gas. At 0.2 of the lower explosive level a red indicator light is energized on the control box panel. As the hazard is removed, the red light extinguishes. Operating from standard 115-volt lines, the instrument features an all-electronic alarm circuit which is free from meters, meter-type relays, and other delicate mechanisms.

Designed for convenient maintenance, the electronic chassis is easily removed and replaced with a spare. For complete information write:

**Johnson-Williams, Ltd., 2618 Third St., Palo Alto, Calif.**  
*Item 6.*

## Illuminator for Steam Gages

A new illuminator for steam gages is said to permit instant and accurate gage readings of the boiler water level over long distances, through dust particles in the air or deposits on the gage glass, or in poorly lighted areas. When the gage is equipped with a Jerguson Mercury Vapor Illuminator, the water column shows blue-green, topped with an intense emerald green spot at the water level, to give an unmistakable water level indication. The illuminator consists of a mercury vapor bulb enclosed in a steel housing, and a ballast box equipped for easy mounting at a convenient spot. The illuminator clips to the gage cover with two sets of brackets,



# New safety equipment for industry

Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published.

making installation easy with no alterations to the gage.

For complete catalog information write:  
**Jerguson Gage & Valve Co., 80 Fellsway, Somerville 45, Mass.**  
*Item 7.*

## Winter Liners for Helmets

A new winter liner for wear under safety helmets in cold weather is announced. Worn separately, does not attach to the helmet. Is made of soft, close

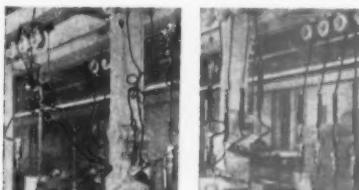


woven woolen material, fits snugly over the head, neck and ears and is provided with tape ties for fastening under the chin. Color tan, it is carefully constructed with lock stitching on all seams and made in three sizes—small, medium and large.

**Industrial Products Co., 2850 N. 4th St., Philadelphia 33, Pa.**  
*Item 8.*

## Retractile Cords

Efficiency of portable tools is heightened when loose, dangling wires are replaced by retractile cord. Neoprene jacketed for longer life, the cords are permanently coiled into a spring-like shape that ex-



tends up to six times its length and retracts when tension is lessened. There are no loops or convolutions to cast shadows

and hence the lighting is improved.

Units contain one to six conductors. Cords may be purchased in mandrel lengths four feet long, and used exactly like straight cords.

**Koiled Kords, Inc., Box K, Hamden, Conn.**  
*Item 9.*

## Measuring Electrostatic Charges

Announcement is made of a new instrument which measures electrostatic charges. To eliminate conditions or find the causes which lead to electrostatic charges and consequent explosions, it is necessary to be able to detect conditions where electrostatic charges build-up occurs. Some methods and instruments have previously been developed which will indicate whether such conditions exist, but this instrument measures such electrostatic charges.

The instrument operates on the principle that a small voltage, proportional to that being measured, is induced by capacitive coupling onto the grid of an electrometer valve. The anode current of the valve is measured by an indicating instrument, calibrated to read in terms of the inducing voltage divided by the distance separating its source from the instrument. The measurement is thus of voltage gradient, or volts per foot.

The instrument consists of a pistol-like body and grip which contains the batteries, switches and adjusting rheostats and the indicating instrument. A detachable cylindrical part corresponding to the pistol barrel contains the hermetically-sealed electrometer valve, the capacitance coupling plate, a gravity-operated setting switch and a sliding member controlling the sensitivity. The instrument is called Statigun and complete information may be obtained from:

**Herman H. Sticht Co., Inc., 27 Park Place, New York City.**  
*Item 10.*

## "Stand-Up" Fork Truck

An electric "stand-up" fork truck, the Stoway, which can operate within its own length is announced by Clark Equipment Co. The Stoway is designed for warehousing and freight terminals where close quarters and narrow aisles demand high maneuverability and where the driver must continually mount and dismount.

Driver comfort, easy on-and-off access, convenience of controls and excellent visibility are reported features. The truck features two methods of braking. Heavy duty hydraulic service brakes on the drive wheels serve regular and parking-brake operations. "Deadman" or parking brakes

go into action when the driver dismounts or removes his foot from the brake pedal.



Positive-control reverse "torque-braking," which occurs when the travel control lever is reversed, is employed.

**Clark Equipment Co., Industrial Truck Division, Battle Creek, Mich.**  
*Item 11.*

## Noise Control

Noise control of air-operated equipment through the use of a radial-flow muffler is now possible. The mufflers are designed to reduce the health hazard caused by excessive noise, save wear and tear on operators' nerves, prevent injury from exhaust air and avoid the hazard of flying pipe scale.

These mufflers silence exhaust air noise by dissipating the exhaust energy. Exhaust air entering the muffler is trapped by the inlet chamber, creating an air cushion to absorb initial exhaust impact. The uni-directional air stream is divided into a



series of streams, designed to reflect against the disseminator in a criss-cross pattern throughout the length of the silencing chamber. Deceleration of the air streams, at the points of intersection, neutralize exhaust pulsations permitting exhaust air to flow into the atmosphere in a smooth noise-free flow.

The mufflers may be used to eliminate exhaust noise on air cylinders, air motors, vacuum pumps, foundry equipment, air vises, auto-truck lifts, mill equipment, power presses, drill presses and most other

# New safety equipment for industry

Further information on these new products and equipment may be obtained by writing direct to the manufacturer or to National Safety News. Accompanying coupon is for your convenience.



air operated equipment. Write the manufacturer for more complete information.

**Allied Witan Co., 4315 W. 138th St., Cleveland, Ohio.**

*Item 12.*

## Finger Protection

By a combination of extra-long leather fingers and a five-eighths inch steel ball stitched securely into the end of each finger, The Boss Manufacturing Co. has discovered a practical way to protect all four fingers of a worker's hand in the same general way that safety shoes protect toes against injury. The new glove is designed



for handling heavy metal sheets and shapes. Two styles are available—No. 1501 with a 5 inch gauntlet cuff and No. 1502 with a 2½ inch safety cuff. Both styles have full-leather fingers and patented thumb construction for extra wear.

**The Boss Manufacturing Co., Kewanee, Ill.**

*Item 13.*

## Extinguisher for Trucks

A new fire extinguisher specifically designed to meet the new ICC standards on fire extinguishers for the trucking industry



is now available. This new 1½-quart version of the Stop-Fire "Redi-Grip" stored pressure extinguisher can be operated with

either air or nitrogen as the pressurizing agent. Either carbon tetrachloride or chlorobromomethane may be employed as the extinguishant. This extinguisher offers special economy features, such as no need or annual recharge. Any driver can recharge the air-operated unit at any garage or depot without special tools. Corrosion-resistance reduces need for extinguisher replacement.

The unit is light in weight and may be grasped in one hand and brought into play position.

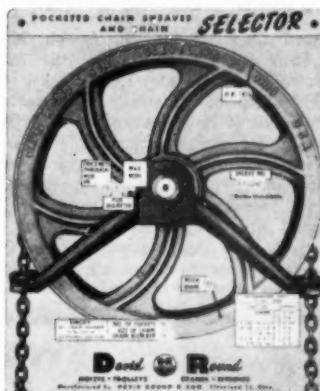
For further information address:

**Stop-Fire, Inc., 125 Ashland Place, Brooklyn 1, N. Y.**

*Item 14.*

## Chain Sheave Selector

A new device called a "Selector" is being offered as a buying aid to purchasers of pocketed chain sheaves and guides, grooved idler sheaves and chain. All of the specification data required in ordering these products, which are widely used for operation of overhead valves, heavy overhead doors and certain types of power drives and hoisting equipment is contained in the selector. It is believed that



engineers generally will find it a convenient device for selecting sheaves for various applications.

The size of the selector is approximately 6½ x 5¼ inches and both sides are utilized in supplying information. It is available free upon written request to

**David Round & Son, Box 883, Cleveland 22, Ohio.**

*Item 15.*

## Fiber Glass Safety Hat

The new Saf-Hed-Hat fills a need for a rugged safety hat with long life that is still light in weight and comfortable to wear. Fiber glass, a highly resilient material, will not readily split, crack or deform which makes it a desirable material for safety hats. The manufacturers claim it meets the ASA Code for dielectric break-



down and exceeds the Code for impact resistance. The cradle of the hat can be quickly and easily adjusted to fit all head sizes and complies with Federal specifications. It is further claimed that due to the durability of fiber glass that this new hat will wear up to twice as long.

**United States Safety Service Co., 1215 McGee St., Kansas City, Mo.**

*Item 16.*

An improved "Sonic Ear-Valv" made possible by a new silicon rubber ear insert tip is now available. Originally announced on October 1, 1950, the Lee Sonic Ear-Valv is the mechanical ear protector which acts as a protective ear drum by removing the harm from harmful loud noise while allowing the ear canal to remain open to receive air and permit hearing of ordinary voice level sounds.

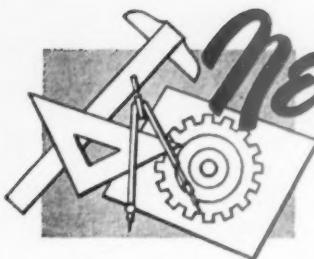
The new silicon rubber tip offers many advantages over the original gum rubber tip. It is softer and more comfortable to wear. The silicon rubber was developed by General Electric Co., whose tests proved it will endure extremes of heat and cold and is more resistant to skin oils and ear wax.

The Ear-Valv is not an ear plug, but is a tiny sonic filter of many precision parts. It consists of the new silicon rubber ear insert which holds a tiny cylinder wherein is contained the controlling mechanism.

The Lee Sonic Ear-Valv is manufactured and sold by the

**Sigma Engineering Co., 1491 No. Vine Street, Los Angeles 28.**

*Item 17.*



# New safety equipment for industry

Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published.

## News Items

Safety Clothing and Equipment Co., 1990 E. 69th St., Cleveland, Ohio, announces the appointment of Norman J. McLeod as president and general manager. For the past ten years Mr. McLeod was vice-president in charge of sales promotion and advertising of the Royal Vacuum Cleaner Company.

Earl Brooks, former president, becomes chairman of the board. L. F. Brooks remains as vice-president and Lee Debes as sales manager.

\* \* \*

Gro-Cord Rubber Co., with plants in Lima, Ohio, and Tillsburg, Ont., announces the appointment of D. J. Wriggelsworth to the newly created position of industrial sales promotion manager. Mr. Wriggelsworth has been with the company



since 1934, serving in plant production, as personnel manager, assistant purchasing agent and until now as assistant sales manager.

Gro-Cord feels that "Wrigg," with his many years of practical experience in the manufacture of soles and heels, is well

qualified to assist shoe manufacturers and industrial users with their problems. Mr. Wriggelsworth is married, has three children and lives in Lima, Ohio.

\* \* \*

Formation of a new sales organization, the Hubbellite Corp., with offices in the Farmers Bank Building, Pittsburgh, Pa., has been announced in connection with the announcement that Hubbellite, an inorganic copper-bearing floor surfacing cement, is in good supply again. Hubbellite, a patented product developed and manufactured by the H. H. Robertson Co., will be sold exclusively by the Hubbellite Corp.

The properties of Hubbellite make it valuable for hospital operating rooms as a static-draining floor where anesthetics are used.

\* \* \*

Fireye Corporation, 720 Beacon St., Boston, Mass., announces the appointment of John Caldwell as Eastern sales manager. Mr. Caldwell has been associated with Underwriters' Laboratories, Inc., Factory Insurance Association, Walter Kidde & Co., Inc., and the Connecticut Chemical & Research Co. Eastern Sales Offices will be maintained at Number One Broadway, New York City.

\* \* \*

Elliott "Jack" Spratt, secretary of the Hillyard Chemical Co., St. Joseph, Mo., has been elected president of the Producers' Council, Inc., for 1953.

The Producers' Council, a nationwide organization of building product manufacturers, is dedicated to expanding the overall market for building materials and equipment and furthering the acceptance of new materials and methods. It is affiliated with the American Institute of Architects. As its representative to the Council, Mr. Spratt has gained recognition and appreciation for his work. Serving as

consultant on objectives and programs for the Council, he has collaborated with local



chapters or architects, builders, contractors on building code revisions, apprentice training, material shortages, defense production, new building regulations.

## Safety Courses Offered By N. Y. University

THE SPRING TERM of the evening program in industrial and traffic safety training offered by the Center for Safety Education, New York University, begins February 3, 1953.

The following will be offered:

Basic Required Courses: Safety Directors and Safety Engineers—Their Qualifications, Duties, and Responsibilities; Safety Organization: Values and Limitations; Management and Supervision in Accident Prevention; Psychology of Accident Prevention.

Required Course, Industrial Safety: Industrial Hygiene and Occupational Diseases.

Required Course, Traffic Safety: Operation of Fleet Safety Programs.

Elective Course: Special Problems in Accident Prevention.

JANUARY, 1953

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**NATIONAL SAFETY NEWS**  
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NEW



IDEAS

# Trade publications

## in the safety field

These trade publications will help you to keep up-to-the-minute on new products and developments in industrial health and safety equipment. They are free and will be sent by manufacturers without obligation to readers of NATIONAL SAFETY NEWS who are responsible for this work. Send in the coupon below checked for the publications you desire. Please make your requests promptly.

1. "Wire Rope" Handbook: New handbook tells how wire rope is constructed, what types are suited to various jobs, how to install it. Covers such subjects as abrasion, lubrication, avoiding kinks, alignment of sheaves, winding on drums, bending fatigue, wire breaks, when to discard a wire rope. A. Leschen & Sons Rope Co.
2. "Chemklos": Illustrated folder presents work clothes made of the new fabric Dynel; shirts, trousers and coveralls, constructed of corrosive-resisting fabric, thread and buttons. A sample of the fabric which will not support combustion is included. Mine Safety Appliance Co.
3. Steam Hose: Booklet describes Hy-Test and Great Seal Cord steam hose, indestructible steam hose, creamy hose, and wash-up hose. Gives application, construction, recommended fittings and specifications. Shtields Rubber Co.
4. Washroom Layouts: Sixteen blue print drawings of industrial and institutional layouts are illustrated and described in this 12-page booklet. Provides a general discussion of washroom planning, also roughing-in data. Bradley Washfountain Co.
5. Lehigh Safety Shoes: Catalog No. 16 describes and illustrates complete line of dress and work steel toe safety shoes. Also featured are Neoprene coated rubber safety footwear. Lehigh Safety Shoe Co.
6. "Safety on the Highway": Colorful folder illustrating plain and reflectorized safety and traffic signs complete with the "A" Stand for mounting. Eastern Metal of Elmira, Inc.
7. "Sellstrom Safeguards": Catalog No. 29 contains illustrations, specification data and price list for safety equipment including; goggles with lenses, welding helmets and hand shields, plates and lenses, acetate window shields, industrial respirators, and miscellaneous. Sellstrom Mfg. Co.
8. "Klein Tools": Catalog No. 50 covers company's line of tools for linemen, electricians, and mechanics. Gives sizes, prices. Mathias Klein & Sons.
9. "Proper Care of Floors": Brochure presents a complete and economical program for the care of wood and concrete floors, terrazzo, linoleum and tile. Points discussed include wear resistance, appearance, sanitation, cleanliness, sealers and hardeners, burnishing and buffing. West Disinfecting Co.
10. Fire Extinguishers and Extinguishing Systems: 16-page illustrated catalog lists fire extinguishers and systems for all class fires. Featured is the Randolph "6", a one-hand, trigger action, carbon dioxide extinguisher. Randolph Laboratories.
11. For Slipproof Floors: Pamphlet describes how Oil-Spunj prevents slipping accidents on slick oil covered floors. Non-flammable product eliminates accident hazards and improves appearance of unsightly and dangerous greasy floors. Canfield Oil Co.
12. "Modern Plastic Eye Protection": Pamphlet describes Willson Mono Goggles that are available in flexible Polythene and fully transparent acetate for extra side vision. Willson Products, Inc.
13. Crane Signals Chart: Chart combines crane signals and suggestions for proper use of slings on one side. On the other side are tables listing strength and safe-loads for 8-part braided slings and single-part slings. Macwhyte Co.
14. Linemen's Rubber Sleeves: Literature describes curved elbow linemen's sleeves. Also illustrated are canvas containers to protect sleeves; test data included. W. H. Salisbury & Co.
15. "A Complete Line of Glass Fiber Acoustical Insulations": Folder describes ultralite, ultrafine and ultracoustical, gives the physical properties of each of the three products, points out the qualities, principal uses, ease of application. Sizes, dimensions, company's engineering service included. Gustin-Bacon Mfg. Co.
16. Rubber Footwear: Catalog illustrates a complete line of boots, pacs, gaiters, and rubbers. Featured in the industrial footwear line, a new tougher rubber compound, "Duratest," gives better resistance to abrasion resulting in longer wear. Beacon Falls Rubber Footwear.
17. Thompson Hangers: Catalog No. 50 describes Thompson disconnecting and lowering hangers for servicing overhead lights. Available in both indoor and outdoor models. Specification data and engineering service given. The Thompson Electric Co.
18. "Ampco Safety Tools": Catalog No. 119 describes safety tools representative of the Ampco line. Materials of construction, usage and specifications on chisels, scrapers, screwdrivers, hammers, shovels, pliers, wrenches, etc. Ampco Metal, Inc.
19. Ladders: Pamphlet describes a complete line of aluminum step ladders, extension ladders, and aluminum staging. Featured in the Model "700" non-skid all aluminum platform stand. Metallic Ladder Mfg. Corp.
20. Metal Slitting Saw: A new metal slitting saw catalog illustrating and describing the new carbide tipped metal slitting and slotting saw now available. Catalog contains pertinent information and data regarding the operating characteristics and application. North American Products Co.
21. "Grip-Strut": Booklet describes non-skid grating for floors, catwalks, bridgeways, etc., and stair treads. Selection chart, capacities, weights and deflections also shown. The Globe Co.

## NATIONAL SAFETY NEWS

425 N. MICHIGAN AVE., CHICAGO 11, ILLINOIS

JANUARY, 1953

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A new kind of glove (pat. app. for) ideal on hot jobs that do not exceed 700 degrees. Made from three thicknesses of material: Outer layer of Terry cloth, treated to make it flame-resistant; inner layer of all-wool for added insulation; and third layer (next to skin) of soft, fleeced cotton. This combination gives flexibility and long wear.

In many cases it has replaced the asbestos glove at a big saving. Fine for extra warm welding jobs.

If not available from your safety equipment dealer, write us for information and prices. Also—ask for literature on our complete line of safety gloves.

\*Trade Mark Reg. U. S. Pat. Off.

## SINGER GLOVE MFG. CO.

860 W. WEED ST. CHICAGO 22  
Work Gloves That "Sing"



## Power Press Guards

Protect Operators • Increase Production

Wiesman cam-action press guards enable operators to work at top speed without fear of accident. Guarding is effective and completely automatic . . . does not hamper operator's vision or movement. For all sizes and styles of presses. Used by hundreds of firms. Inexpensive . . . easy to install.

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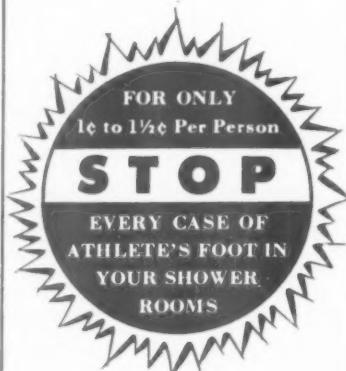
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**Wiesman Manufacturing Co.**  
31 South St. Clair Street • Dayton 2, Ohio

## Advertisers' Index

<b>A</b>	
Albina Engine & Mach. Works	111
Allen Optical Co.	93
American Chain & Cable Co., Inc.	54-55
American Mat Corp.	113
American Optical Co.	B.C.
American Tel. & Tel. Co.	49
Ansul Chemical Co.	11-101
Associated Bag & Apron Co.	115
<b>B</b>	
B-Y's of California	114
Bashlin, W. M., Co.	86
Bausch & Lomb Optical Co.	6
Bradley Washomat Co.	91
Bright, W. H., Co.	106
Buffalo Fire Appliance Corp.	15
Buhrlie, R. H., Co.	95
Bullard, E. D., Co.	50
<b>C</b>	
Cambridge Rubber Co.	73
Canfield Oil Co.	110
Chic Maid Hat Mfg. Co., Inc.	116
Chicago Eye Shield Co.	B.C.
Chicago Hardware Foundry Co.	78
Chicago Watchclock Co.	87
Clark Equipment Co.	59
Columbus-McKinnon Chain Corp.	84
Coppus Engineering Co.	5
Cotterman, J. D.	114
Cover, H. S.	107
Cunningham, M. E., Co.	102
<b>D</b>	
Davenport, A. C., & Sons, Inc.	109
Davis Emergency Equip. Co.	90
Dorsey Safe-T Shoe Co.	10
Dow-Corning Corp.	14
DuPont, E. I., de Nemours & Co., Inc.	61
<b>E</b>	
Eagle Manufacturing Co.	58
Ellwood Safety Appliance Co.	95
Employers Mutuals of Wausau	81
<b>F</b>	
Finnell Systems, Inc.	41
Flor-Dry Co.	94
Foam-X Co.	122
Franklin Research Co.	92
<b>G</b>	
Gro-Cord Rubber Co.	43
<b>H</b>	
Halperin, A. F., Co., Inc.	104
Haws Drinking Faucet Co.	104
Hillyard Chemical Co.	87
Hood Rubber Co.	63
Hynson, Westcott & Dunning, Inc.	7
Hy-Test Div., International Shoe Co.	16
<b>I</b>	
Industrial Gloves Co.	74
Industrial Products Co.	106
Iron Age Div., H. Childs & Co.	45
<b>J</b>	
Jones, C. Walker, Co.	85
<b>K</b>	
Kidde, Walter & Co., Inc.	53
Kimberly Clark Corp.	12
Kinnear Mfg. Co.	83
<b>L</b>	
Loughlin, Thomas Co.	79
Legge, Walter G., Co., Inc.	65
Lehigh Safety Shoe Co.	3
J. Lichtman & Sons	109
Littell Machine Co.	101
Lowery Brothers	63
<b>M</b>	
Marsh & McLennan, Inc.	111
McAn, Thom, Safety Shoes Div.	46-47
McDonald, B. F., Co.	72
Merrill Brothers	116
Metal Arts Co., Inc.	113
Mine Safety Appliances Co.	I.P.C.
<b>N</b>	
National Safety Council	97-98-99-100
Neuman Mfg. & Sales Co.	89
Nolan Co.	116
<b>O</b>	
Oxon, Inc.	94
Oxy-Catalyst, Inc.	102
<b>P</b>	
Patent Scaffolding Co., Inc.	107
Pennsylvania Optical Co.	57
Permamix Corporation	105
Prairie State Products Co.	91
<b>R</b>	
Randies Mfg. Co.	113
Randolph Laboratories, Inc.	62
Reece Wooden Sole Shoe	105
Rockwood Sprinkler Co.	8
Ruemelin Mfg. Co.	103
<b>S</b>	
Safety First Supply Co.	110
Safety Tower Ladder Co.	112
Sani-Mist, Inc.	103
Sawyer, H. M., & Son Co.	82
Schrader's, A., Son	51
Scott Aviation Corp.	64
Sigma Engineering Co.	114
Sindar Corp.	4
Singer Glove Mfg. Co.	122
Smith, A. O., Corp.	76
Standard Safety Equipment Co.	108
Stepan Chemical Co.	48
Stonehouse Signs, Inc.	69
<b>T</b>	
Taylor, Halsey W., Co.	109
Tokheim Oil Tank & Pump Co.	80
Torit Mfg. Co.	93
Trumbull Mfg. Co.	90
<b>U</b>	
Union Wire Rope Corp.	75
U. S. Hoffman Machinery Corp.	115
U. S. Safety Service Co.	9
U. S. Treasury	96
<b>V</b>	
Vogue Wright Studios	108
<b>W</b>	
Wagner Sign Service	71
Watchemoket Optical Co.	13
West Disinfecting Co.	67
Wiesman Mfg. Co.	122
Willkins Co.	89
Williams Jewelry & Mfg. Co.	116
Willson Products, Inc.	1
Wyandotte Chemicals Corp.	77

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# COVER GOGGLES



• The new series 548 and 549 Cover Goggles by CESCO will fit comfortably over all popular styles of men's or women's glasses. A 20% increase in size over similar goggles permits clearance of even the modern extreme styles of personal glasses.

Newly designed, contoured edges eliminate pressure points on the nose. These curved, wide bearing surfaces also seal against the entrance of flying particles or light flashes. Larger air space within goggle reduces fogging.

Screw-type retaining rings permit quick lens change from front. Standard 50 mm lenses seat flush with rings to deflect flying objects. Chippers style has indirect ventilation through slotted lens rings and direct ventilation through perforated side shields. Welders and dust models have indirect ventilation through side shields.

Simplified buckle arrangement adjusts bridge width easily. Choice of 3 adjustable headbands: elastic, flat rubber, or Comfort King round rubber with no metal slides or buckles.

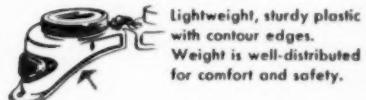
For a really modern goggle that will fit over a wide variety of glasses there is nothing better than the No. 548 CESCO Cover Goggle. It is "Right...before your eyes!"

See or write your  
CESCO safety equipment distributor  
for full details



New CESCO Cover Goggles fit well over all popular styles of glasses—even over extreme types such as these.

## FEATURES



Lightweight, sturdy plastic with contour edges. Weight is well-distributed for comfort and safety.

## HEADBANDS

Three types, all fully adjustable—Comfort King round rubber, flat rubber, or elastic.



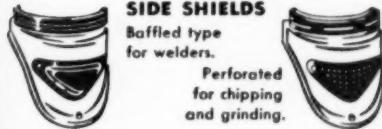
## LENS VENTILATORS

Slots in edges of lens frames and rings are offset to baffle air flow.



## SIDE SHIELDS

Baffled type for welders.  
Perforated for chipping and grinding.



# CESCO

FOR SAFETY

Now . . . 2 New  
**AO COVERGLAS GOGGLES**  
Fit Over Safety  
And Personal Glasses



#326



#327

**NEW - 4 WAYS!**

1. New Cup Size and Shape
2. New Lens Size and Shape
3. New Side Shields
4. New Easy Lens Replacement

AO's newest development in eye protection—Chippers' and Welders' Coverglas Goggles—can be worn over practically every pair of personal glasses (even the biggest frames) and most types of safety prescription goggles *with and without side shield*.

Wider vision, too, because the lenses are larger and scientifically designed to give up to 20% more vision. Yet, with all these features the goggles weigh but a fraction of an ounce more than ordinary Coverglas goggles . . . cost only slightly more.

These goggles are the newest . . . and two of the greatest . . . developments since the advent of safety goggles. Get all the facts about these two outstanding Coverglas goggles from your AO Safety Products Representative. He can supply you.



**QUICK FACTS**

- Lens easily replaceable from rear (not front) by means of a spring clamp—no tools needed
- Lightweight, brown plastic cups fit face snugly, won't conduct heat or electricity
- Light-tight side shields for welders (on No. 327 goggle) provide indirect ventilation
- Bridge—High-grade leather. Instant adjustment
- AO worker-lab tests show much greater field of vision and increased comfort
- All-rubber headband, easily adjustable

"326" Chippers' Coverglas goggle supplied with regular Super Armorplate lenses. "327" Welders' Coverglas goggle supplied with regular Noviweld lenses and cover lenses.

AO's Industrial Vision Program Increases Production, Decreases Accidents. Write today for booklet "Improved Industrial Vision" to 1011 Vision Park, Southbridge, Mass.



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